

3dcreative

Issue 056 April 2010



Interview
Alessandro Baldasseroni



The Gallery
Jason Baldwin, Carlos Ortega,
Martin Beyer & more!



Project Overview
"China Town"
by Özcan Şener



FREE - Inside Look!
Digital Art Masters:
Volume 4 Project Overview
by Tomáš Král

Look for this button inside



- Free Environment Lighting
Artist Scene & Textures

- Free Rigging model



SCULPTING RIGGING & LIGHTING

ZBrush Mechanical Sculpting

Cedric Seaut Character Modeling: Chapter 4 will show the steps to creating the chest section for our character.

Introduction to Rigging

We kick start a brand new series on rigging for 3dsmax by **Luis San Juan Pallares** and for Maya by **Richard Maegaki & Danilo Pinheiro**

Lighting Solutions with V-Ray

V-Ray for 3ds Max: Chapter 6 by **Eric Ennis** wraps up this series by looking at some of the extras V-ray has to offer.

Midday Sun

Environment Lighting: Outdoor Scene for 3DSMax + Mental Ray, 3DSMax + Vray, Cinema 4D and Maya + Mental Ray.



EDITORIAL

Hello and welcome to the April issue of 3DCreative. As everyone is getting ready for Easter and stocking up on Easter treats, we thought we would make a real treat of an issue for you all this month, by kicking off a great new tutorial series and by showing you some of the best new 3D Artwork in the world today.

Our long standing subscribers may remember an interview with the amazingly talented Alessandro Baldasseroni, well this month we touch base with him again and find out a bit more about what he is currently working on. Alessandro tells us how it is to work on computer games for the famous Blur studios, and gives us a bit of an insight into the processes he uses to create his great artwork. On the subject of great artwork you should check out some of the amazing work that he has sent us to go with his interview.

This month we have a great making of by Özcan Şener, he talks us through how he made his sci-fi image China Town, and shows us a few sneaky shortcuts he uses to speed up the process. As well as this superb making of we have some really great gallery images this month, including the excellent image on the front cover by Martin Beyer. This month's gallery also features artwork from Carlos Ortega, A. Martin Puentes Rivera, Patrick Suen, Jason Baldwin and many more.

On to the tutorials then, this month's issue contains the last chapter in the Vray for 3DS Max series. Eric Ennis wraps up the series by telling us a little about Vray Plugins. Out with the old and in with the new, we start a new tutorial series called an Introduction to Rigging, looking first of all at Planning your Rig. This tutorial will be handled in Max and Maya, Richard Maegaki and Danilo Pinheiro will be tackling Maya and Luis San Jan Palleres 3DS Max. This fantastic new six part series will teach you everything you need to know about rigging your character for animation.

Cedric Seaut continues his fantastic step by step guide to Character Modeling in ZBrush and this month shows us how he created the chest area of his character. Cedric shows us how he made everything right down to the final details and as usual gives us detailed images of everything that he does.



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Character Modeler / Texture Artist



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ENVIRONMENT LIGHTING

Series for 3ds Max MR & V-Ray, Maya & Cinema 4D

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FREE STUFF!

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Last but not least this month we feature the forth chapter of the environment lighting tutorial, this month looking at Midday sun. We have the usual crew to deal with this one, Andrew Finch in 3DS Max, Andrzej Sykut in 3DS Max and Vray, Fredi Voss in Cinema 4D and Luciano Iurino in Maya. The weather is looking pretty miserable this week so let's hope this midday sun tutorial puts a summery spring in our step.

We hope you enjoy reading this month's issue and come back next month as we have a great new tutorial series by Wayne Robson starting called Mudbox Female Character creation, and Wayne has made some great video's to go with his tutorial. So with this to look forward to I'm sure we will see you again soon.

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For optimum viewing of the magazine, it is recommended that you have the latest Acrobat Reader installed. You can download it for free, here: [DOWNLOAD!](#)

To view the many double-page spreads featured in 3DCreative magazine, you can set the reader to display 'two-up', which will show double-page spreads as one large landscape image:

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If you're having problems viewing the double-page spreads that we feature in this magazine, follow this handy little guide on how to set up your PDF reader!



CONTRIBUTING ARTISTS

Every month artists from around the world contribute to 3DCreative, and you can find out a little more about them right here! If you'd like to get involved in 3DCreative magazine, please contact: simon@3dtotal.com

ENVIRONMENT LIGHTING OUTDOOR SCENE

Chapter 3 of our popular Environment Lighting tutorial series with a great lineup of talented artists:

Andrew Finch (3ds Max + MR), Andrzej Sykut (3ds Max + Vray), Luciano Iurino (Maya) and Fredi Voss (Cinema 4D).



ANDRZEJ SYKUT

When it comes to CG, Andrzej is a bit of a generalist, but lighting is where the fun is for him – that, and post-production/compositing. He currently works at Platige Image, and also does some freelancing as well. While he enjoys his work, it's also time-consuming, so he tries to get away from the computer as often as possible to enjoy the world. <http://azazel.carbonmade.com/> eltazaar@gmail.com



ANDREW FINCH

Aged 27 and living in the great city of Birmingham in the U.K., Andrew has a degree in 3D Animation which

inspired his passion for environment art. He now works as an environment artist at Rebellion, and says, "Working in the games industry is exciting: you never know what the next project will be and there's always something new to learn. This helps to keep you creative and grow as an artist." afinchy@googlemail.com



FREDI VOSS

Living and working as a fine artist and 3D freelancer in Germany, Fredi – a.k.a. rollmops – can often be found on the various web communities, where he has also won several awards. His client list includes Audi and Siemens, and he also has an Animago Award and a Fine Art degree under his belt!



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LUCIANO IURINO

Started back in 1994 with 3d Studio on MS-Dos as a modeller/texture artist. In 2001 he co-founded PM Studios (an Italian

videogame developer) with some friends, and still works for it as the lead 3D artist. He also works as a freelancer for different magazines, web-portals, GFX and videogame companies, and recently he left the 3ds Max environment to move on to XSI.

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ERIC ENNIS

26-year old self-taught digital artist in Paris, France, Eric saw *Tron* as a child and decided then that 3D was the way to go! He began learning LightWave 4, later moving onto 3ds Max 3. He started out in videogames, working for various companies in Paris, and then moved to England to join Realtime UK, before joining BUF Studio in Paris.



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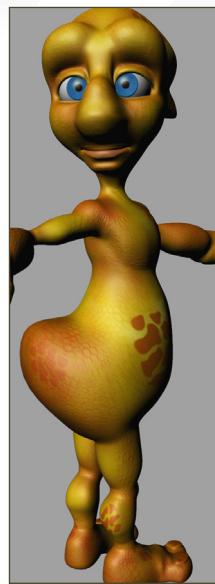


ALESSANDRO BALDASSERONI

Alessandro

Baldasseroni was born and raised in Milan, and is employed as character modeler/texture artist at Blur Studio - Venice (CA).

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LUIS SAN JUAN PALLARES

My name is Luis

San Juan, I am a freelancer with over 9 years CG experience. I have worked as a character setup supervisor and created tools for the studios I worked at, such as Nexus Productions, Keytoon Animation Studios, Ilion Animation Studios and the Mill.



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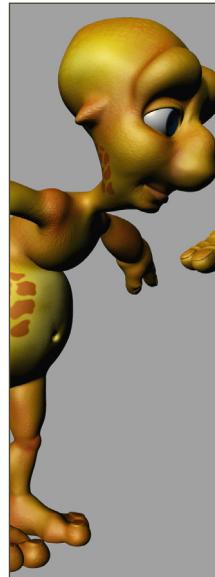


DANILO PINHEIRO

Danilo Pinheiro is a Brazilian with a Physics degree from UFMG. He worked for 5 years as a 3D generalist in films,

advertising, arts, HQ, video clips, TV series, etc. After that, he is working as a Character TD, because he enjoys solving problems.

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RICHARD MAEGAKI

Born in Brazil, Richard Maegaki studied at Melies School of Cinema and Animation where he discovered a passion for rigging.



After a brief time at Casablanca Animation as a Character Rigger, Richard was hired at Vetro Zero/Lobo and is working there as a Lead Character TD since 2007.

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Environment Lighting: Volume 2 - Outdoor Scene | Andrzej Sykut

WOULD YOU LIKE TO CONTRIBUTE TO 3DCREATIVE OR 2DARTIST MAGAZINE?

We are always looking for tutorial artists, gallery submissions, potential interviewees, 'making of' writers, and more. For more information, please send a link to your portfolio, or send examples, to: simon@3dtotal.com



"ZBrush 3.5 has allowed artists a remarkable amount of freedom. ZSketch in particular has redefined traditional polygon modeling and made it much more intuitive. I am grateful for the benefits that ZBrush provides"

CGI Artist
Tae-Bong Lim

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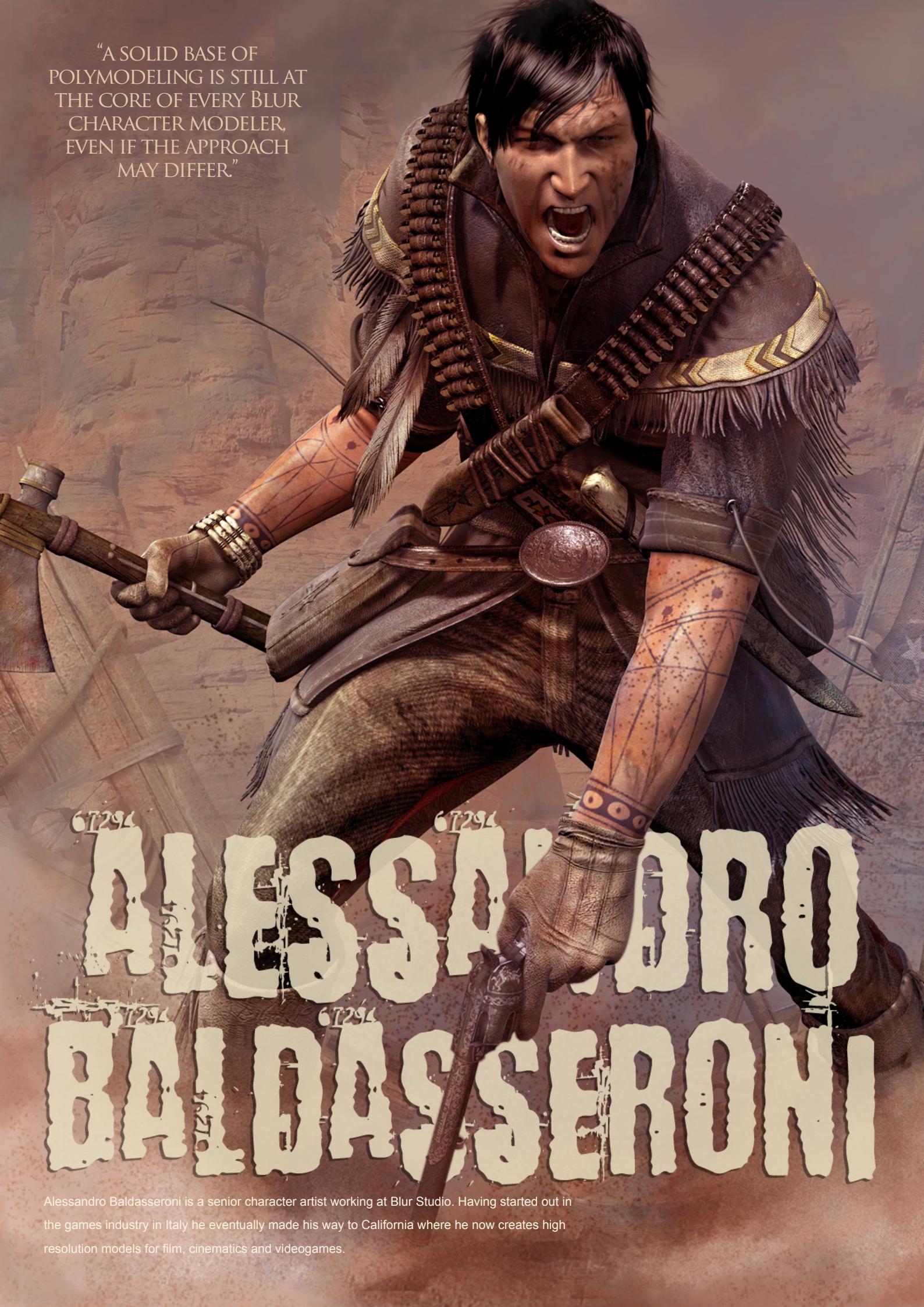
OUR ALUMNI MADE AN IMPACT IN 2009.

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"A SOLID BASE OF POLYMODELING IS STILL AT THE CORE OF EVERY BLUR CHARACTER MODELER, EVEN IF THE APPROACH MAY DIFFER."



67294
ALESSANDRO
BALDASSERONI

Alessandro Baldasseroni is a senior character artist working at Blur Studio. Having started out in the games industry in Italy he eventually made his way to California where he now creates high resolution models for film, cinematics and videogames.

AN INTERVIEW WITH ALESSANDRO BALDASSERONI

You are currently working at Blur Studio which has a prestigious history and is known for its high standards. How did you reach the level that enabled you to get the job and what do you feel were the defining moments for you leading up to the position?

I was working for a videogame developer in Milan, but I was always developing my own personal portfolio which basically had nothing to do with my work as game artist. This gave me the chance to get noticed online so I had a few contacts to work as freelancer here and there to create some high poly assets and gain some popularity because of them. One day I just asked Blur via email if there was any chance to work with them and they told me that there was no open positions for a character modeler at that time but if I wanted there might have been the chance to do some freelancing and so I did. I freelanced for Blur for some months, and during this time we both realized that we were kinda comfortable working together. So after something like one and a half years Blur asked me if I was interested in moving to Venice and



working full time for them. I accepted and after some technical time to prepare the papers I moved to Los Angeles and here I am.

How easy was it to fit in freelance work for Blur during that period whilst working and how many hours a week did this entail when you had projects?

It was not easy at all, but I was very committed

and passionate. The remote freelance work for Blur had the same kind of schedule as working in the studio....so I basically had to work no less than 18 hours a day (considering I already had a regular eight hour a day job in a games company) for something like 16 days straight at times. It was pretty crazy but Blur's commission came usually at a rate of one every couple of months....so it was feasible....somehow.



"I COULDN'T IMAGINE NOT INCLUDING ZBRUSH IN EVERY STEP OF MY MODELING PIPELINE, EVEN DURING THE EARLY STAGES WHILST BLOCKING IN THE PROPORTIONS."

As a senior character artist you obviously have a high number of characters in your portfolio. What modelling technique do you favour and what is your typical approach to creating a detailed model?

Actually a solid base of polymodeling is still at the core of every Blur character modeler, even if the approach may differ. Some people prefer to use Zbrush even at early stages for roughing up proportions and later for detailing whilst other people prefer to rely on a brush only for the details. As far as I am concerned I couldn't imagine not including Zbrush in every step of my modeling pipeline, even during the early stages whilst blocking in the proportions. Usually we have a given concept and sometimes we just have to stay close to a given game asset but in both cases, we just



want to be sure at the beginning that the proportions are correct and locked in a very few days to allow the riggers time to do their segmented rig.

Then it's just a matter of following the concept and adding detail after detail; often with a bit of necessary retopology to some meshes. What we usually have in the end is a situation in which we are able to extract all sorts of normal, cavity, ambient occlusion or displacement maps from a high res Ztool organized on many subtools. Each subtool is UV edited accordingly and some people do it in max whilst others use external applications like UV layout and some even use XSI. Then it comes texturing and shading, based on a light rig given by the project supervisor, this process can take several days.

Is the texturing and shading intrinsically related to the provided light rigs or can you ever use a general approach which will work under various lighting conditions?

Well, let's say that it's VERY dependent on the lighting rig for fine tuning. Since we use the mental ray architectural materials, which are supposed to be physically accurate and the lighting rigs are as physically accurate as possible, the shaders we use should work on their basic properties under a wide range of lighting conditions, so they are quite reliable.



With regards to texturing, do you unwrap any of your characters or do you use a more procedural approach using materials and shaders?

I usually completely unwrap my characters and sometimes I mask localized areas and apply some procedural maps in addition to the existing texture maps to increase the detail for close-ups.

"MY FAVORITE ASPECT IS PROBABLY TEXTURING AND SHADING EVERYTHING CLOSE TO THE FINAL RENDER WHICH MAKES ME HAPPY."

What are the typical timeframes given for creating a character from modelling through to texturing and what aspects do you enjoy the most?

We have very tight scheduling when it comes to characters but it really depends if the character is background or a hero character but the timeframes usually vary from 8 to 16 days for modeling, texturing and surfacing. During this time frame we usually also put the characters into a pose and do some sample stills for the client and internal review. My favorite aspect is probably texturing and shading everything close to the final render which makes me happy.

Can you tell us a little about the differences between texturing and surfacing using one of your characters as an example?

They're strictly related...it's probably just a matter of naming convention. Texturing is the process which consists in preparing a UV layout for each mesh (UV editing) and preparing the various textures (diffuse, specular, bump displacement) in 2d applications like Photoshop or extracting particular maps from 3d applications like ZBrush. Shading (or surfacing) is the process with which we basically build up the material with those textures and controlling many numeric parameters (bump, specular values etc) to render the proper surface on each mesh (metal, leather, stone, wood etc)



Do you ever get the chance to design any of your characters or are you always provided with a character sheet to work from?

The range of creativity we have as character modelers is very limited. The client or our internal department of concept art dictates the look of all the characters we create. We always have at least a 3/4 view of the character we have to do in terms of concept art and then it's up to ourselves to fill eventual gaps in the

concept with details, but even in this case the extra detail is subject to review and approval. Sometime we just up the res of the game assets from the client.

What do you feel are some of the most valuable lessons you have learned during your time at Blur?

The value of my time and the efficiency to preserve it, because it's easy to put in a lot of



love especially at the beginning of a profession like this, completely killing yourself and forgetting to find a balance between real life and passion.

Which characters in either film or videogames have impressed you the most and why?

I still love the design of the characters in the "Conan the Barbarian" movie, the classic T800 terminator exoskeleton and the Aliens of Giger.

ALESSANDRO BALDASSERONI

For more work by this artist please visit

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Interviewed By : Richard Tilbury



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Carlos Ortega
Jason Walker
Nicolas Buzeki
Jaehoon
Andrzej Kuziola
Patrick Suen
Martin Beyer
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Textures done by Joe Beckley



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MB

This series of five tutorials will focus on the topic of outdoor lighting and more specifically the task of setting up different light rigs to reflect a variety of weather scenarios. Each of the chapters will use the same base scene as a starting point and show a step by step guide to finding a lighting and rendering solution to describe a set time of day under different conditions ranging from a damp foggy night to sunset / sunrise.

The tutorials will explain the type of lights used and how to set up their parameters alongside the combined rendering settings in order to achieve an effective result. The manipulation of textures will also be covered in order to turn a daylight scene into night for example, as well as a look at some useful post production techniques in Photoshop in order to enhance a final still.

FOLLOW

This month our artists will show you how to turn our seemingly boring scene into a truly atmospheric environment with the Forth chapter covering Midday Sun.

So if your interested in seeing the Forth chapter of this amazing series, please flip to the back of this magazine and enjoy.

3DSMAX + MENTAL RAY | PAGE 094

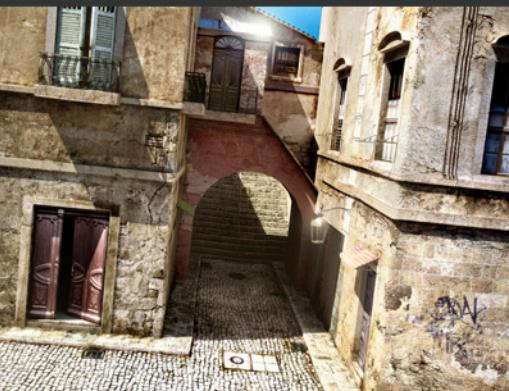
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FOLLOW THIS
TUTORIAL SERIES ON
PAGE 094

ENVIRONMENT OUTDOOR LIGHTING





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CHAPTER 1 | JANUARY ISSUE 053

CONCEPT

CHAPTER 2 | FEBRUARY ISSUE 054

SHOES (ZBRUSH PLASTIC SCULPTING)

CHAPTER 3 | MARCH ISSUE 055

HANDGUN (HARD-EDGE MAX/SILO)

CHAPTER 4 | THIS ISSUE

CHEST (ZBRUSH MECHANICAL SCULPTING)

CHAPTER 5 | NEXT ISSUE

PANTS (ZBRUSH FABRIC SCULPTING)

CÉDRIC SÉAUT CHARACTER MODELING

The aim of these tutorials is to provide both an efficient and methodical approach to creating characters that can encompass both organic and mechanical components and equip artists with the knowledge to learn techniques used by industry professionals. The series provides an in depth account of creating a character from the concept and base mesh stages through to the final detailing and high poly sculpt. It will as its subject adopt the theme of an alien humanoid in battle dress, partly clad in armor and carrying weapons.

Each of the chapters will address a certain aspect of the design and show a step by step guide covering the principal techniques and methods used to sculpt the numerous components including the chest and body armor, anatomical detail, footwear and clothing along with various accessories and weaponry. Much of the high poly sculpting and anatomical refinement takes place in Zbrush, discussing the appropriate brushes and tools used but the author will also integrate 3dsMax into the pipeline as a way of preparing some of the base meshes and mechanical components. Although 3dsMax is used in conjunction with Zbrush the modeling techniques are equally applicable to most other 3d packages with the principal lessons proving universal.



CHAPTER 4 - CHEST (ZBRUSH MECHANICAL SCULPTING)

Software Used: ZBrush, 3ds Max, Silo, and

Photoshop

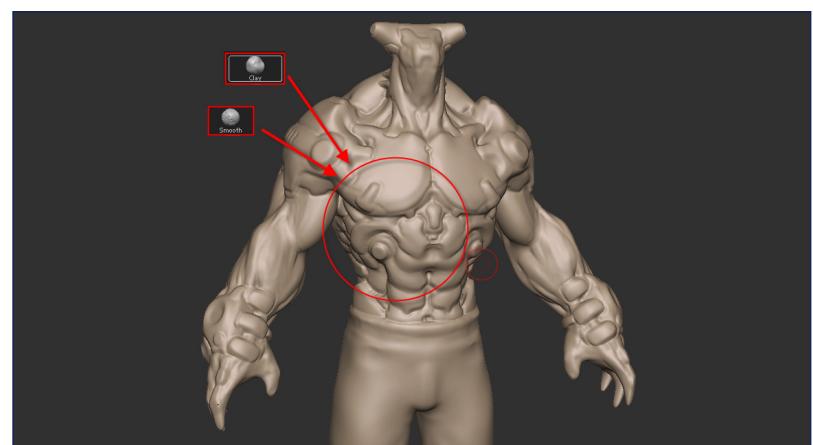
INTRODUCTION

In the following chapter, we are going to see how to sculpt a mechanical object in ZBrush from the basic concept we achieved in the first chapter. We are then going to introduce several accessories which we will integrate into the chest.

Fig 01



Fig 02



1. We will begin with the basic concept from chapter 1. (Fig.01)

2. By using both the Clay and Smooth ZBrush brushes, I tried to extract more volumes which will allow for a more polished object. (Fig.02)

3. By using the same technique shown in chapter 2 (creating a shoe – step 5), I polypainted a better topology on the current concept. You will notice there are two different colors on the object which represent the two different objects we will create; one being the chest and the other the hands. We are going to use this technique in order to save memory and allow us to sculpt more smoothly. Usually hands require more polygons and hence more resources due to the fingers so it's often good to find a way to detach them into a unique piece. (Fig.03)

Fig 03

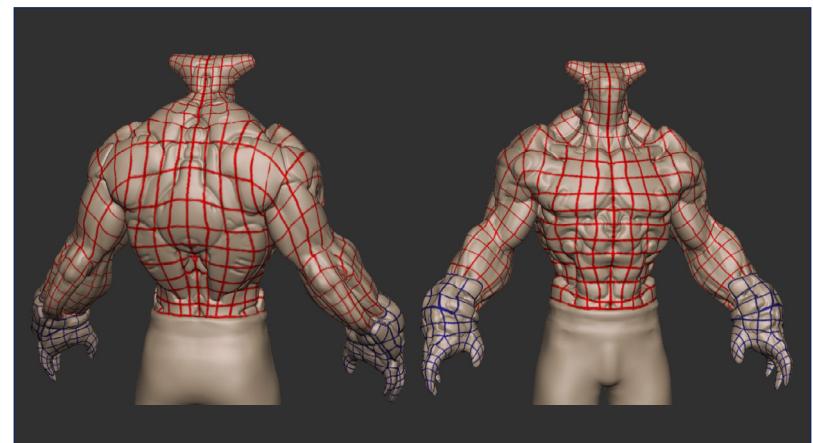


Fig 04



4- 5- 6. Don't hesitate to use the transpose function in order to work on a specific area as this will allow you to paint a cleaner and better topology. The arm is a good example which might be quite hard to paint without hiding the rest of the object. (Fig.04 – 06)

Fig 05

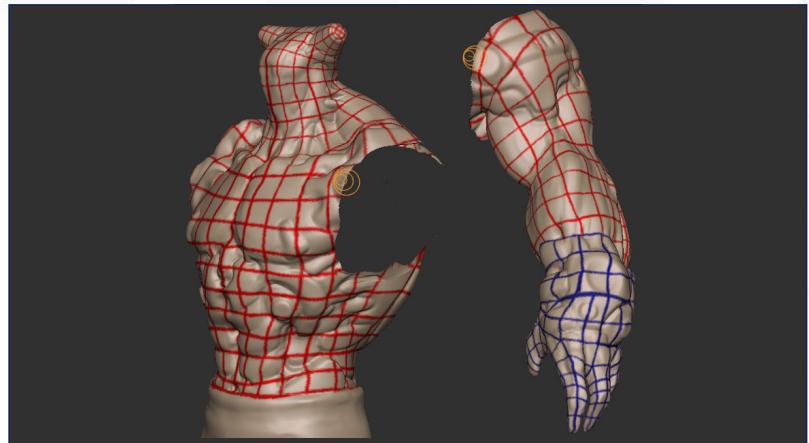
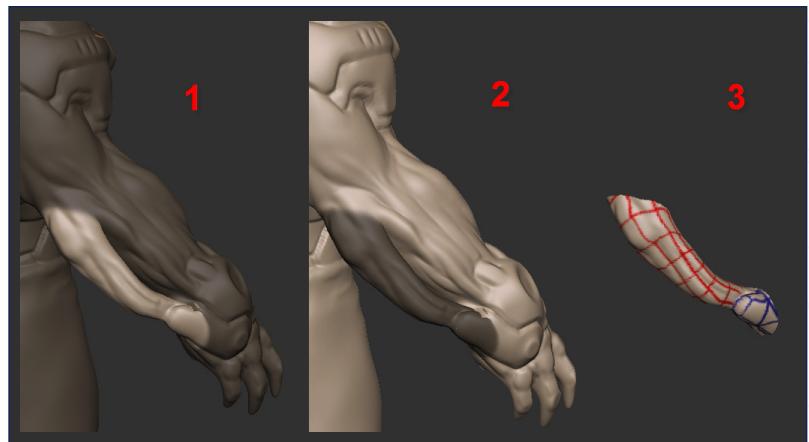


Fig 06



7- 8. Once you're done with the polypainted topology used the re-topology process explained in chapter 2 - step 12 to recreate brand new base meshes for the chest and hand. Remember to do only one hand as later we will use symmetry to duplicate it. (Fig.07 – 08)

Fig 07

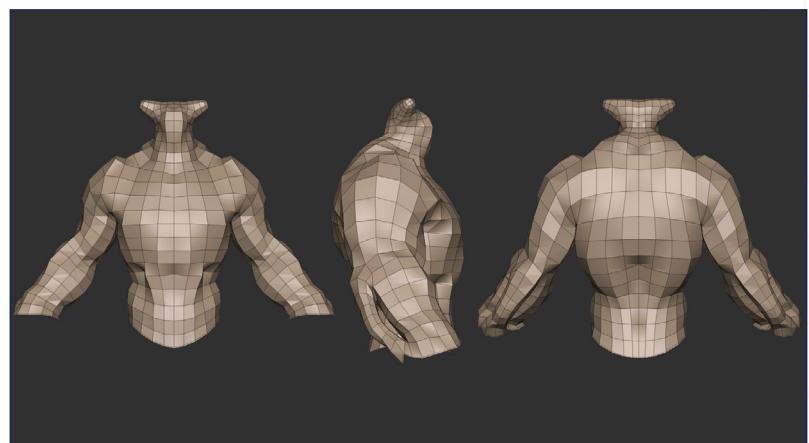
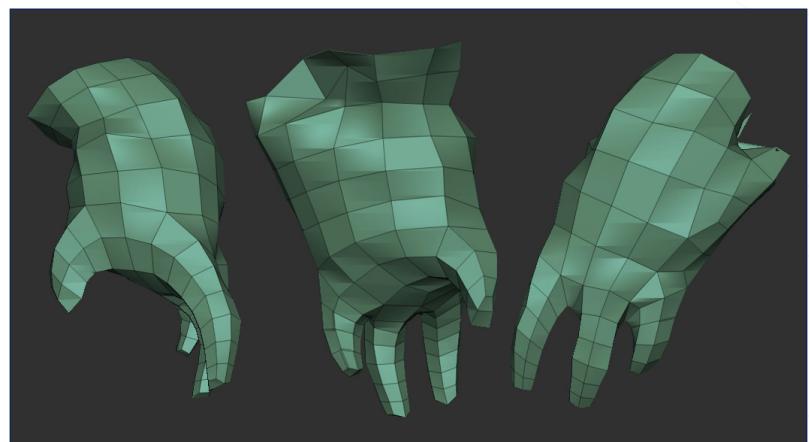


Fig 08



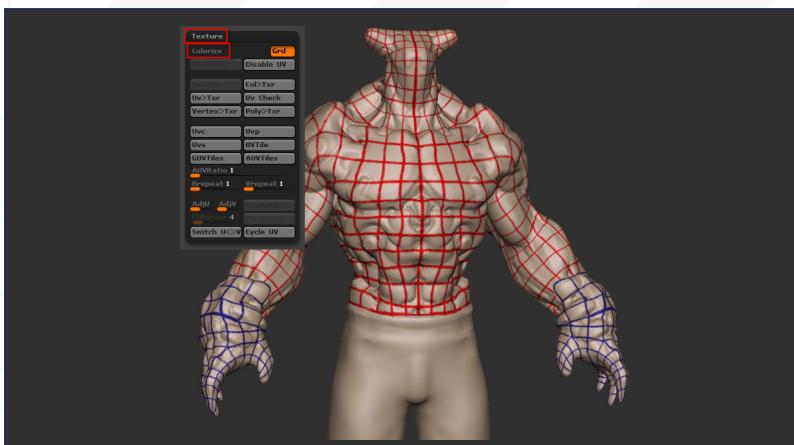


Fig 09

9. Go back to your polypainted Ztool and turn off colorize under the Texture Tab. We are now going to append both previous objects with this tool. (Fig.09)



Fig 10

10. Under the SubTool tab, press Append and first choose the Chest and then the Hand as we did in chapter 2 - step22. (Fig.10)



Fig 11

11. We have now three different SubTools; the old concept and the new chest and hand. Select the chest and subdivide it. (Fig.11)

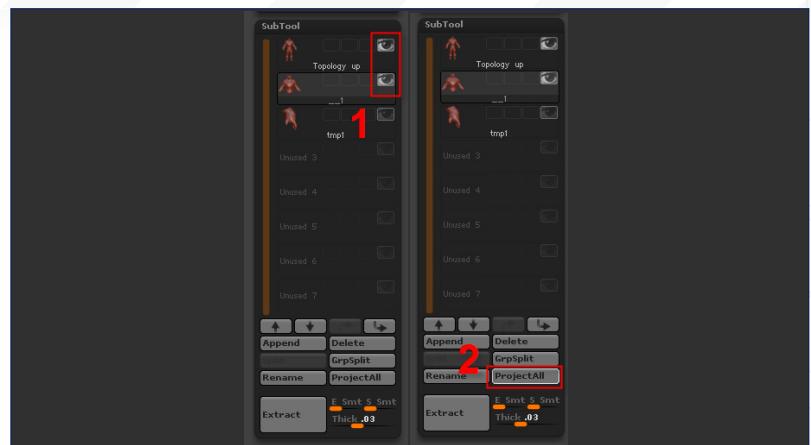


Fig 12

12. Now press StoreMT under the Morph Target Tab and display the old concept by pressing on the eye icon beside it. (Fig.12)

13. On the left (1) is the last action we did above before pressing ProjectAll in order to project all of the sculpted information from the concept onto the new chest base mesh. (Fig.13)

Fig 13



14. Here are the results below. (Fig.14)

Fig 14



15. Hide the old concept by pressing the eye icon. We are now going to correct the minor artifacts that the projection has created. (Fig.15)

Fig 15



16. Here on the back we can see an example of some small artifacts. (Fig.16)

Fig 16

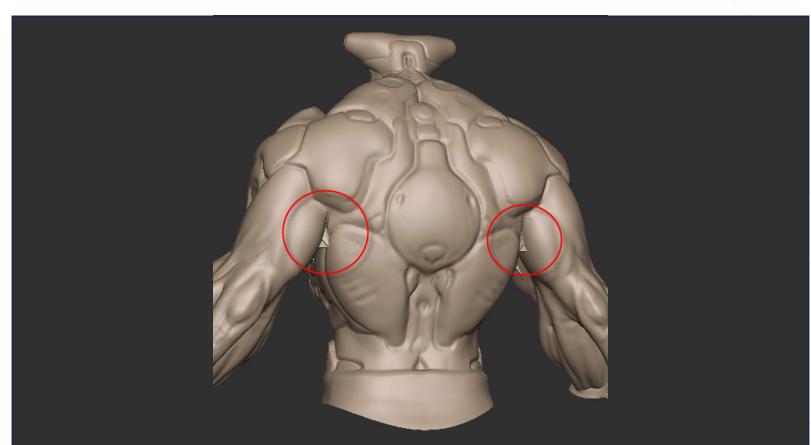




Fig 17

17. Use the Transpose function to select only the arms. (Fig.17)

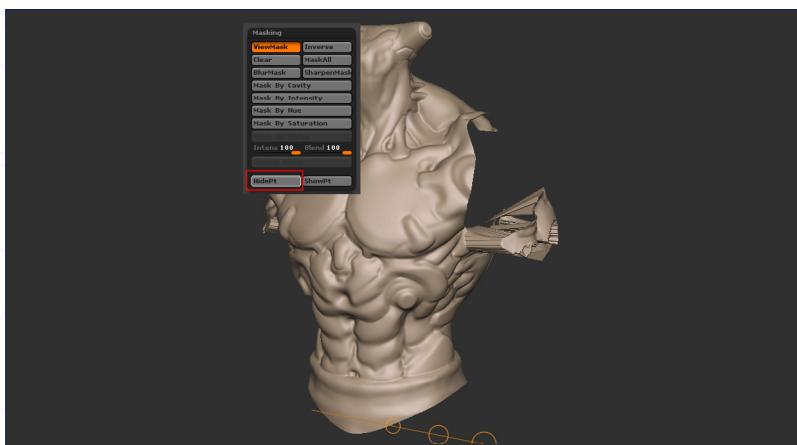


Fig 18

18. Now hide them by pressing HidePt under the Masking Tab. You can now clearly see the artifacts. (Fig.18)

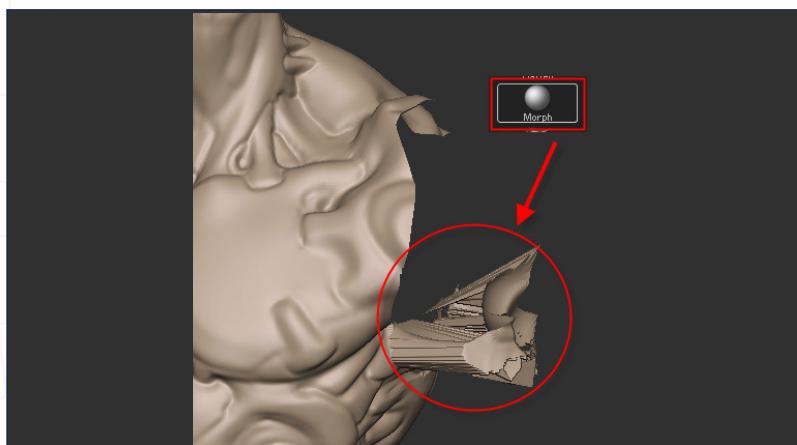


Fig 19

19. We are now going to use the Morph data we stored in step 12 to remove them. Choose the Morph brush and set the intensity to 100. Now all we need to do is just paint on the artifacts. (Fig.19)

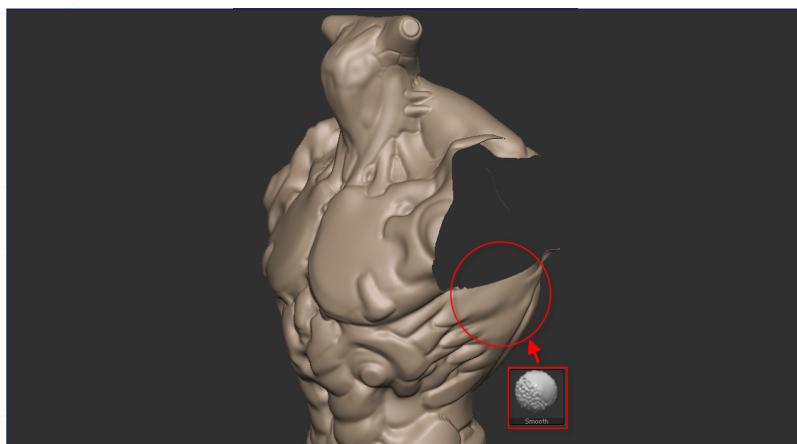


Fig 20

20. Using the Smooth brush, polish the area to get a clean junction. (Fig.20)

21. Use the same techniques explained above to fix any other artifacts. Here is an image of the final result. (Fig.21)

Fig 21



22. Use the same steps for the hand by first subdividing it and then storing the morph target. (Fig.22)

Fig 22

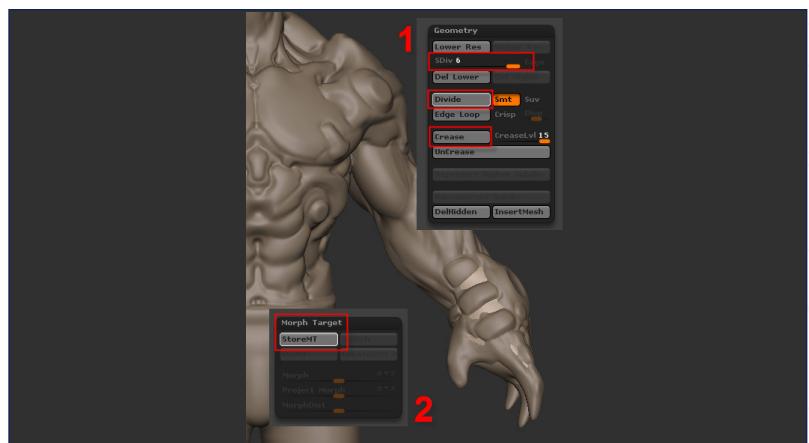
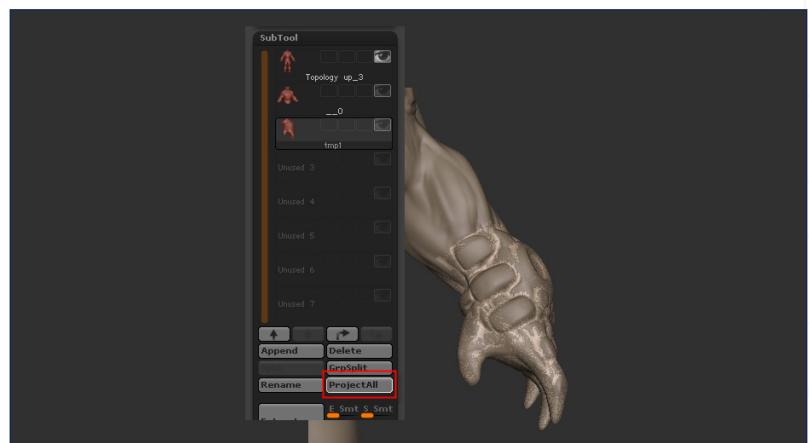


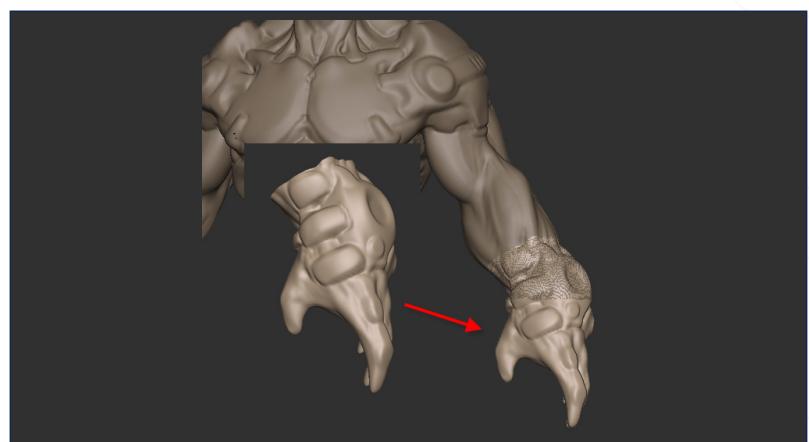
Fig 23

23. Project the old concept onto the new hand. (Fig.23)



24. Below you can see both new objects. We are now going to clean the transition between them. (Fig.24)

Fig 24



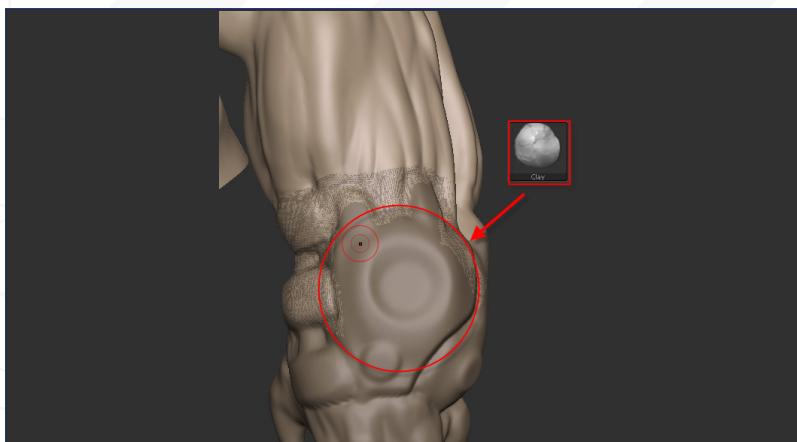


Fig 25

25. Select the chest and using the Clay brush, push in the transition area to get a perfect assembly. (Fig.25)

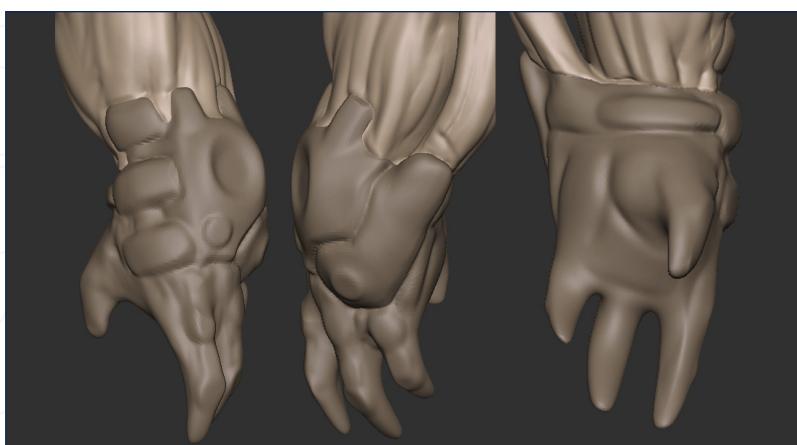


Fig 26

26- 27. Here is a preview from different angles. This doesn't have to be perfect as we are going to polish and sculpt both parts. (Fig.26 – 27)



Fig 27

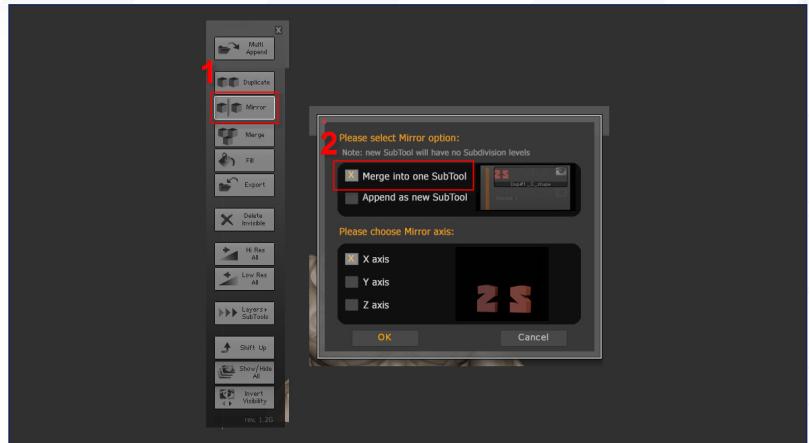


Fig 28

28. We are now going to create a symmetrical copy of the hand. First select the hand and then press Del Lower to remove the objects subdivision history. Then, press the SubTool master button under the Zplugin menu. (Fig.28)

29. After a menu appears, click on Mirror and then OK using the parameters shown below.
(Fig.29)

Fig 29



30- 31. Here are several previews of the result.
(Fig.30 – 31)

Fig 30

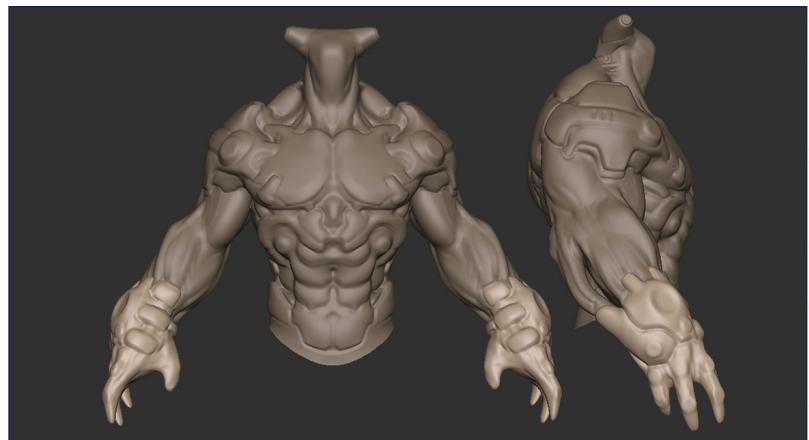
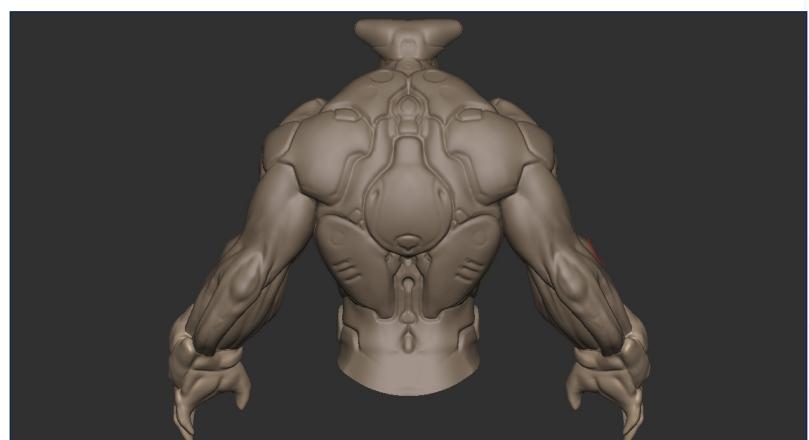


Fig 31



32. Still with the hands selected, reconstruct the subdivision which is proves important in saving display memory. (Fig.32)

Fig 32





Fig 33

33. Here is a final preview. (Fig.33)

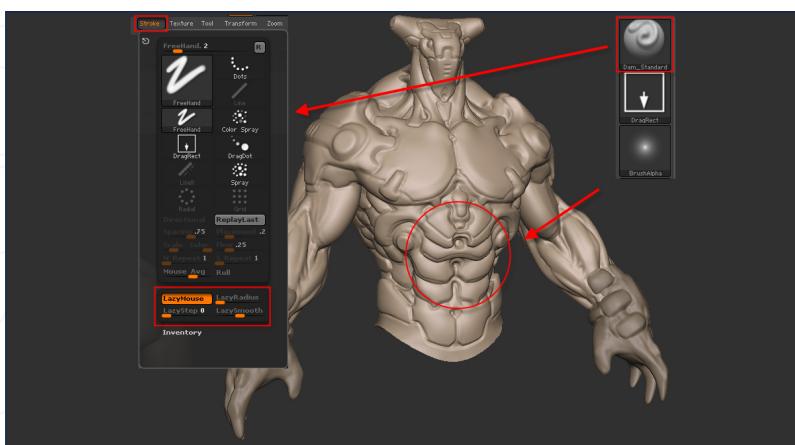


Fig 34

34. It's time now to add more detail to the chest. The Dam standard brush is the main key to achieve this and when used with the LazyMouse it becomes the most powerful tool ever. After selecting the Dam Standard brush, press L to activate the LazyMouse and change the stroke parameters to those shown below in order to draw some perfect smooth lines. Let's now draw some more details on the front. (Fig.34)



Fig 35

35. The back. (Fig.35)

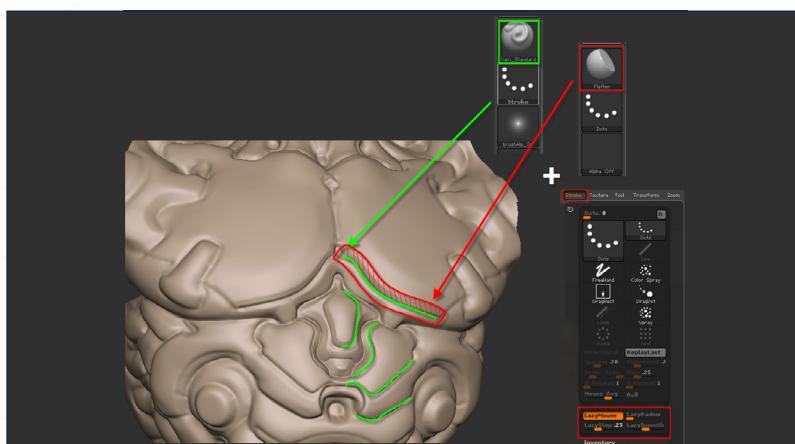
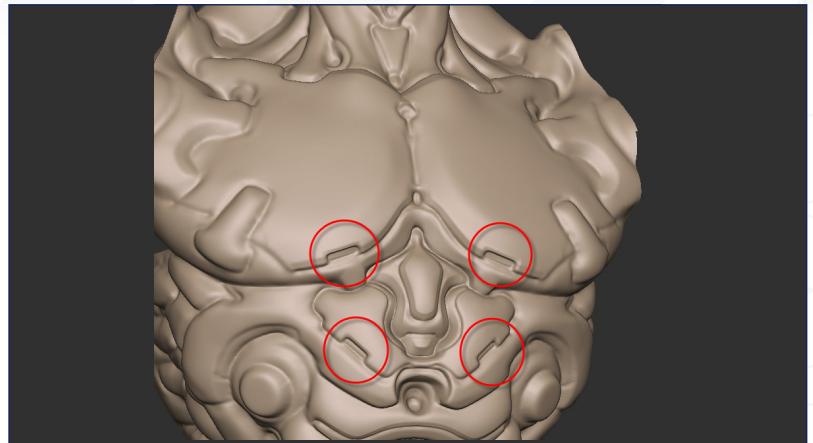


Fig 36

36. We are now going to work on a small area to explain the different steps in the process and then apply these techniques to the entire character. Using the Dam Standard brush draw the lines slowly to avoid artifacts, and then use the Flatten brush with the same LazyMouse/ stroke parameters to flatten the corresponding line above the previous one. All the green lines are done with Dam Standard brush but don't hesitate to use Smooth sometimes to remove bumpy effects. (Fig.36)

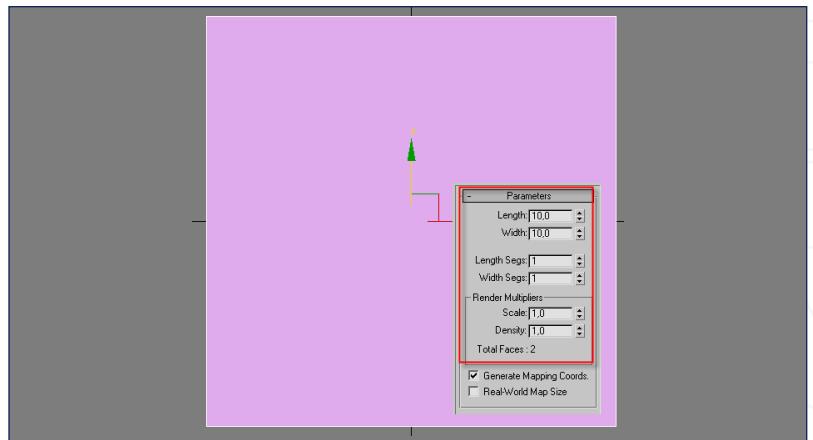
37. We are now going to explain how to create and sculpt these details. This technique is probably the second main component in the mechanical sculpting process. In reality, these details begin as actual 3D objects so let's create them in 3ds max first. (Fig.37)

Fig 37



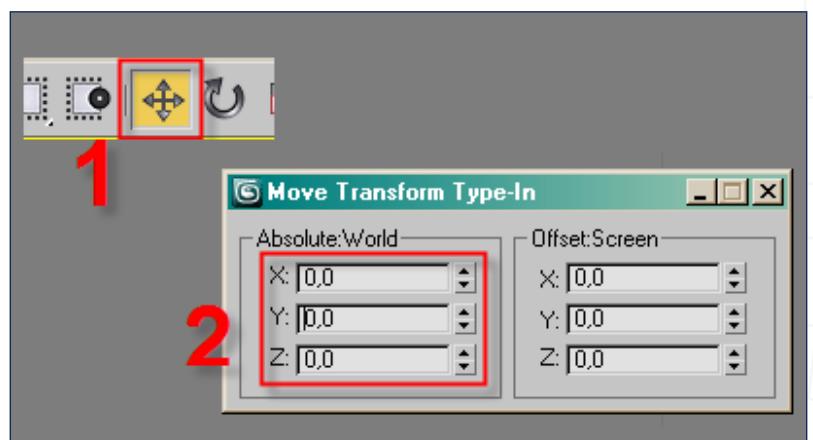
38. Create a basic plane in 3dsmax using the parameters shown below. We will first create a rectangle. (Fig.38)

Fig 38



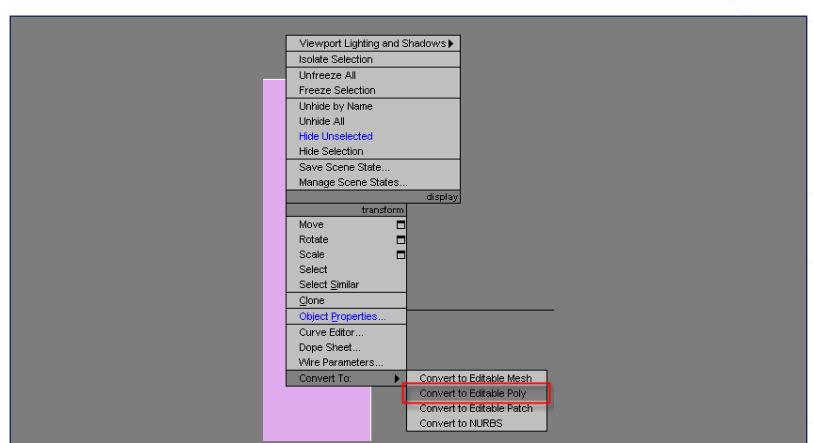
39. Move it to the center of the scene and then right click on the Move button to display the pop up box below and change the X, Y and Z values. (Fig.39)

Fig 39



40. Convert it into an Editable Poly. (Fig.40)

Fig 40



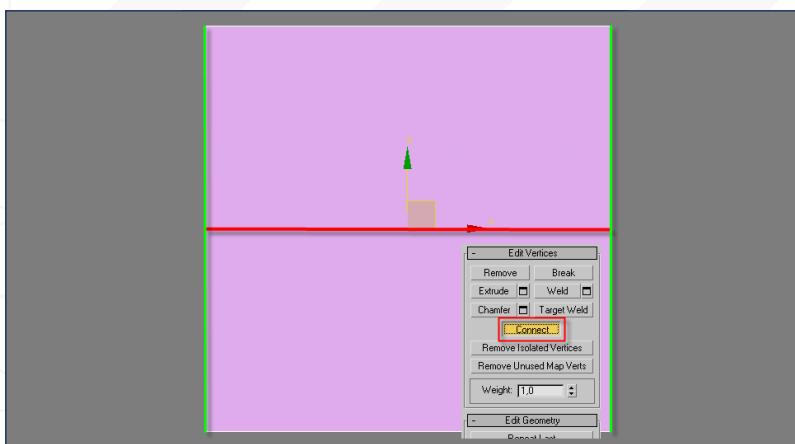


Fig 41

41. Select the edges shown in green and press the Connect button to create a new edge. (Fig.41)

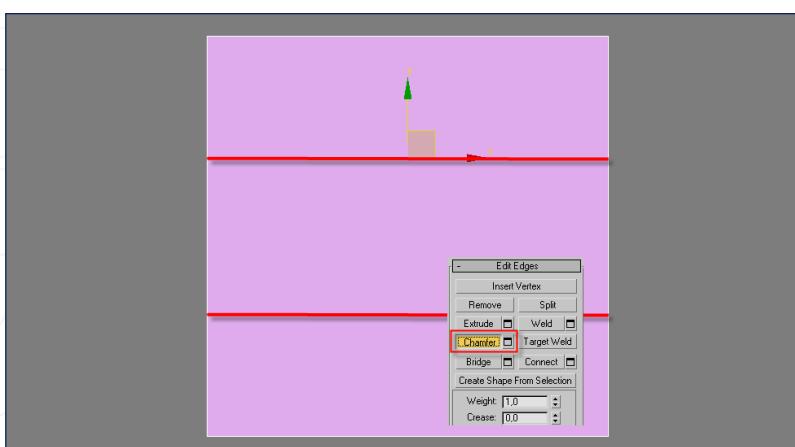


Fig 42

42. Select the newly created edge and chamfer it as shown below. (Fig.42)

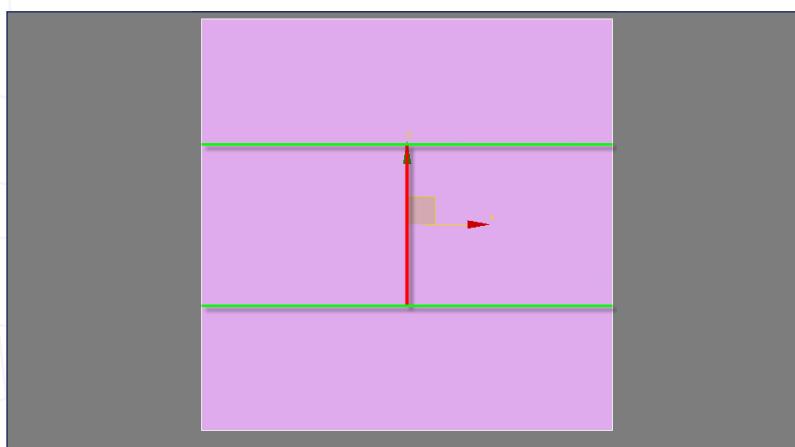


Fig 43

43. Repeat the process to create a new edge between them. (Fig.43)

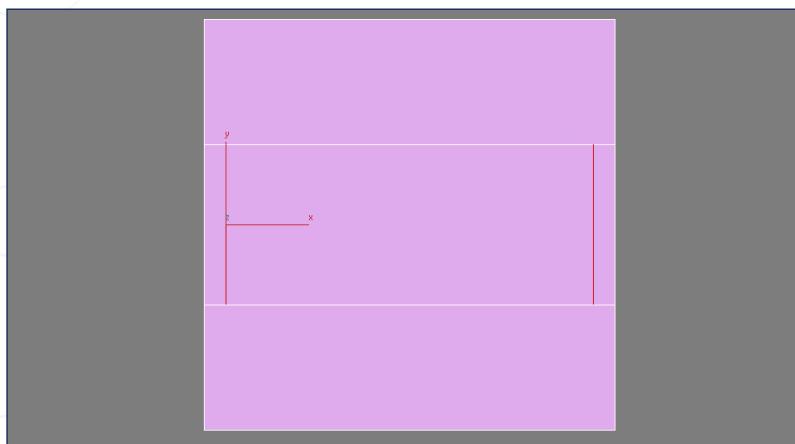
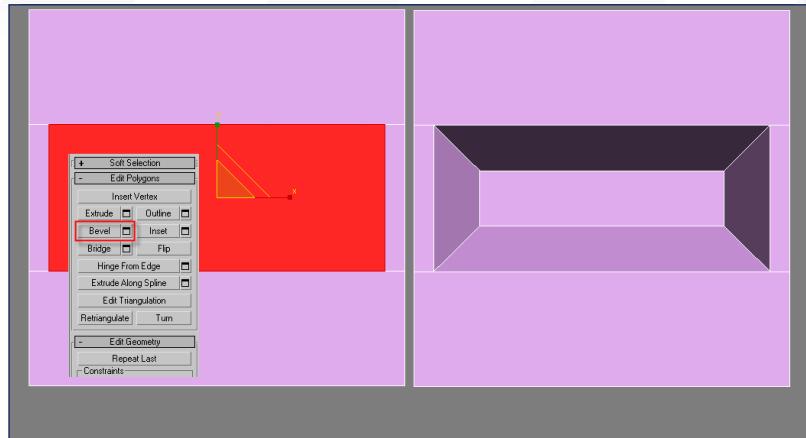


Fig 44

44. Chamfer it once again to get the result shown below. (Fig.44)

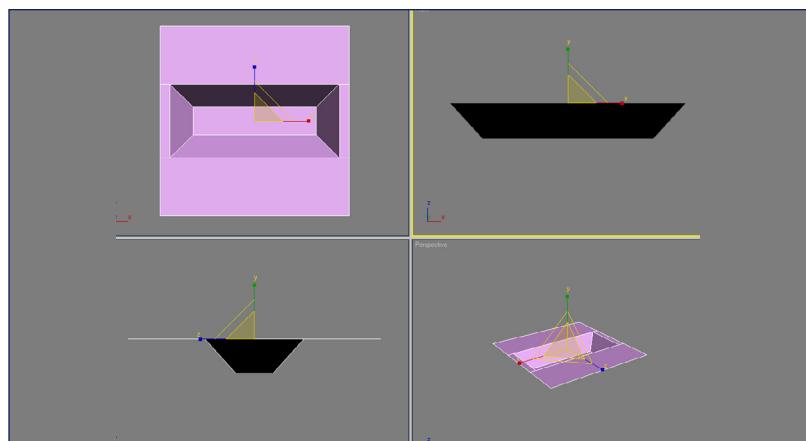
45. Select the face and Bevel it as shown on the right. (Fig.45)

Fig 45



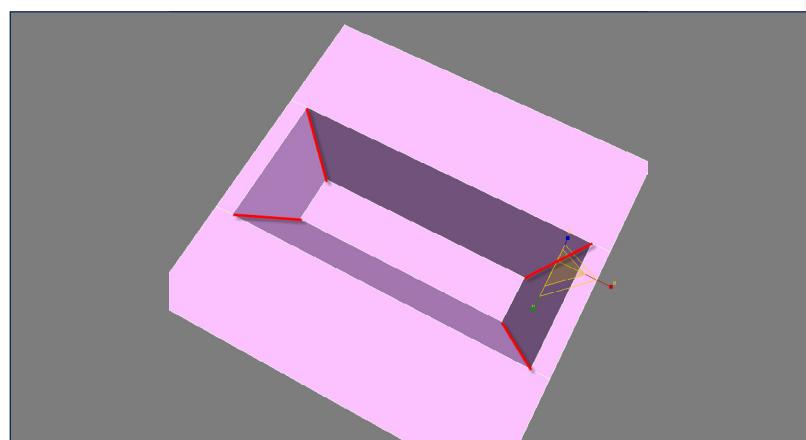
46. Here is a preview of the current stage. (Fig.46)

Fig 46



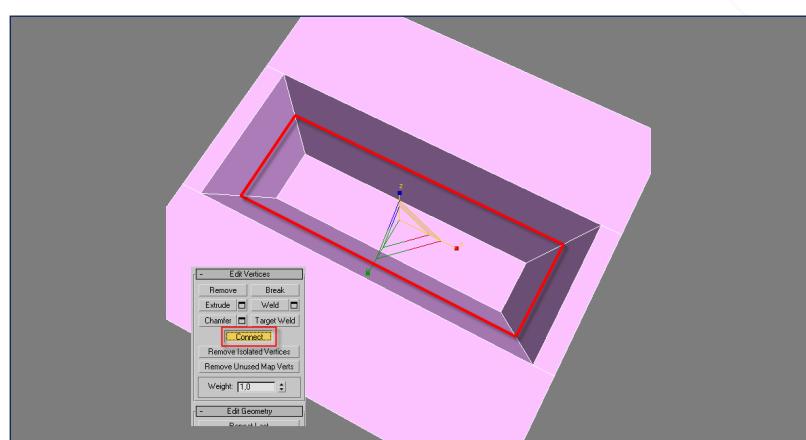
47. Select the edges as shown below. (Fig.47)

Fig 47



48. Now press Connect to create a new Edge Loop. (Fig.48)

Fig 48



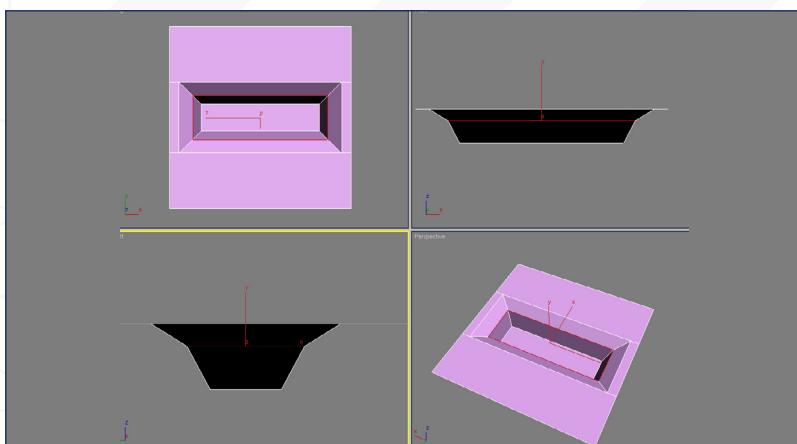


Fig 49

49. Move and scale the newly created Edge Loop as shown below. (Fig.49)

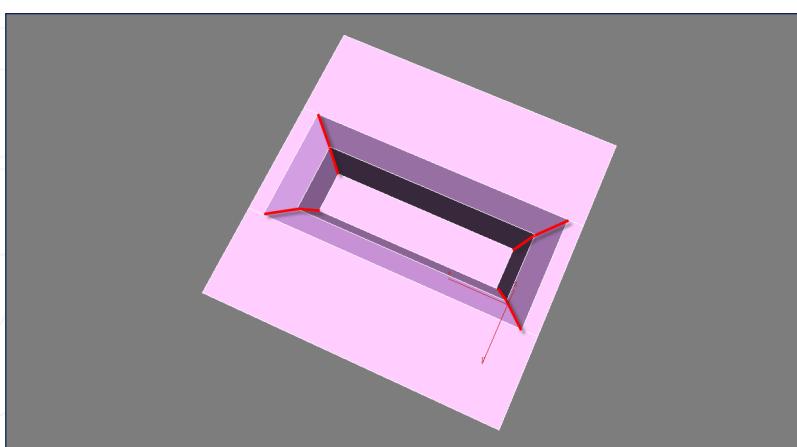


Fig 50

50. Select the corner edges. (Fig.50)

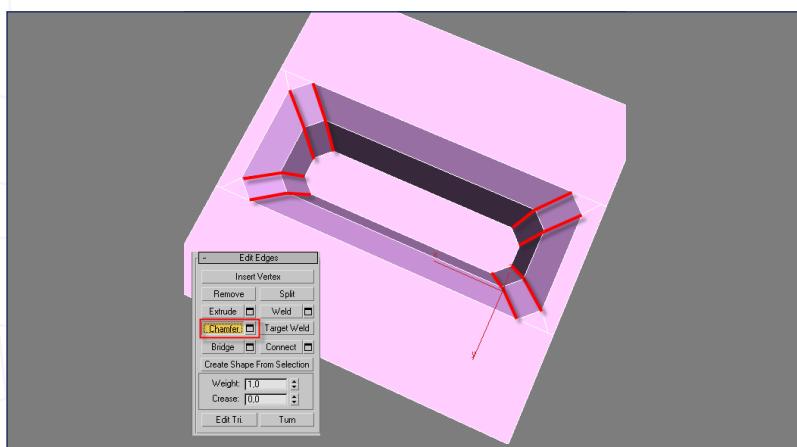


Fig 51

51. Now chamfer them which will sharpen the corners. (Fig.51)

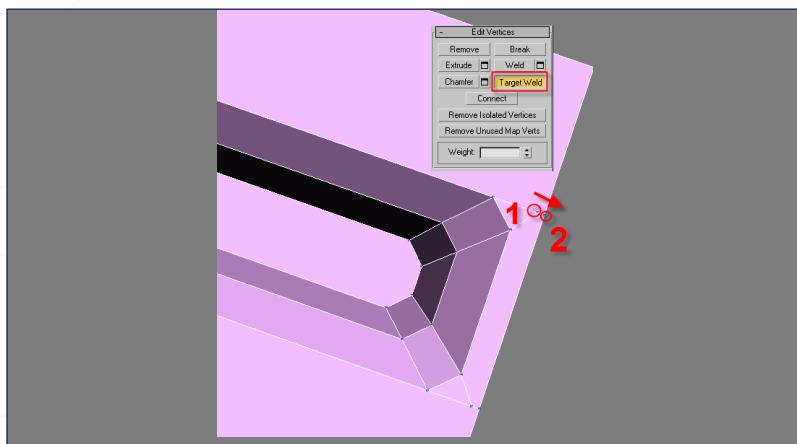
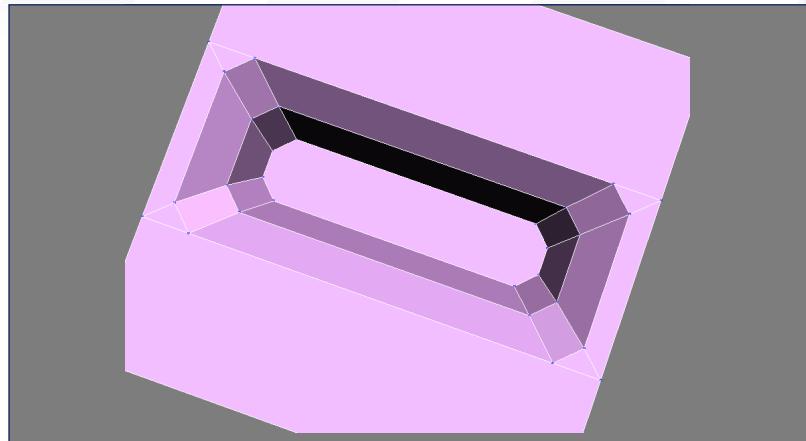


Fig 52

52. We will now clean up the object. Press Target Weld and then select vertex one followed by vertex two to weld them together. (Fig.52)

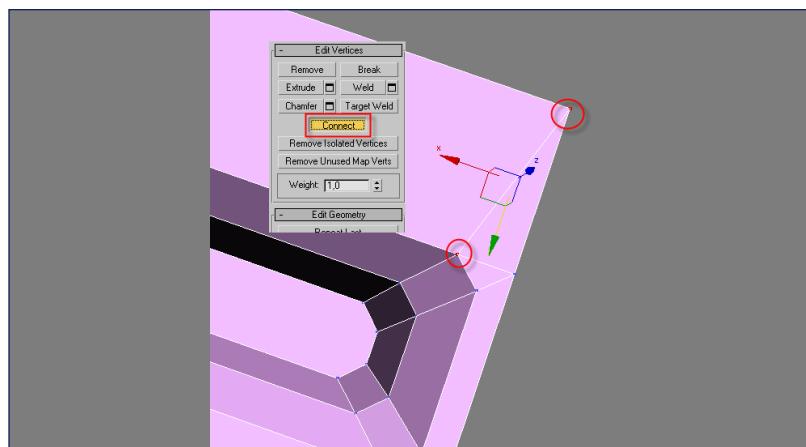
53. Follow the same procedure with each corner, the result of which can be seen below. (Fig.53)

Fig 53



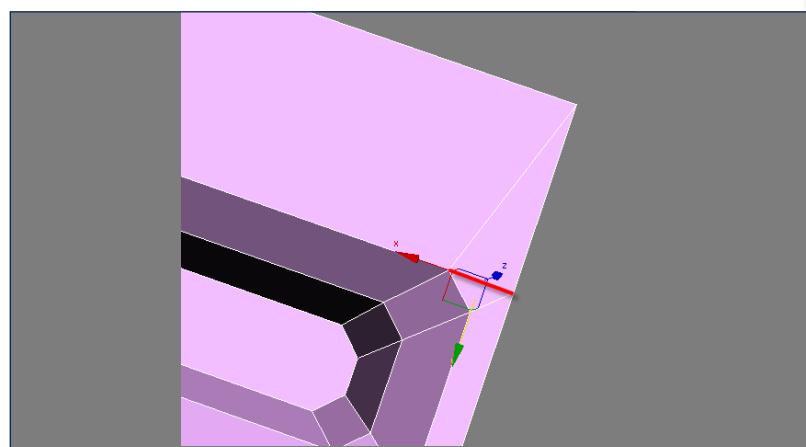
54. To maintain the object as quads, Connect the vertices shown below. (Fig.54)

Fig 54



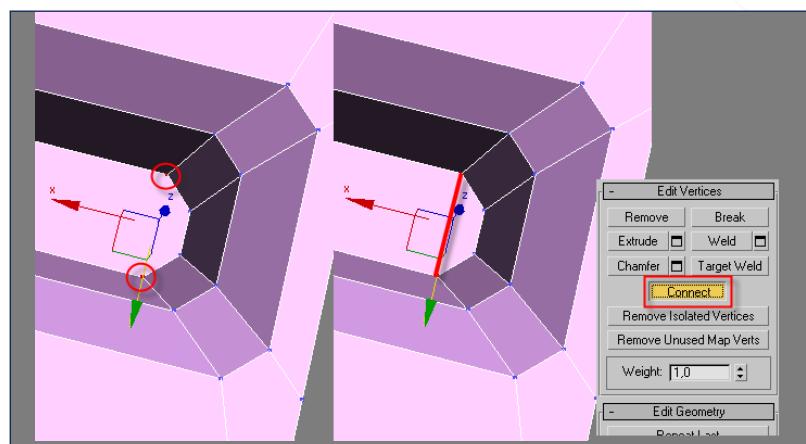
55. Now delete the edge in the middle to create a quad. (Fig.55)

Fig 55



56. Do the same inside the shape to generate quads. (Fig.56)

Fig 56



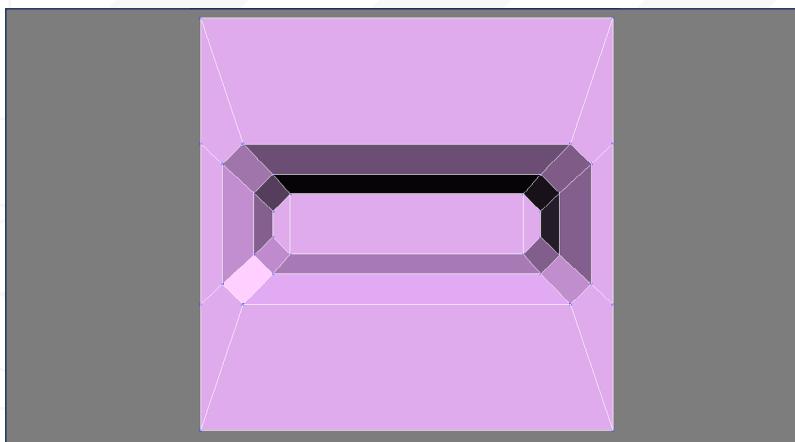


Fig 57

57. Here is a preview of the final result. (Fig.57)

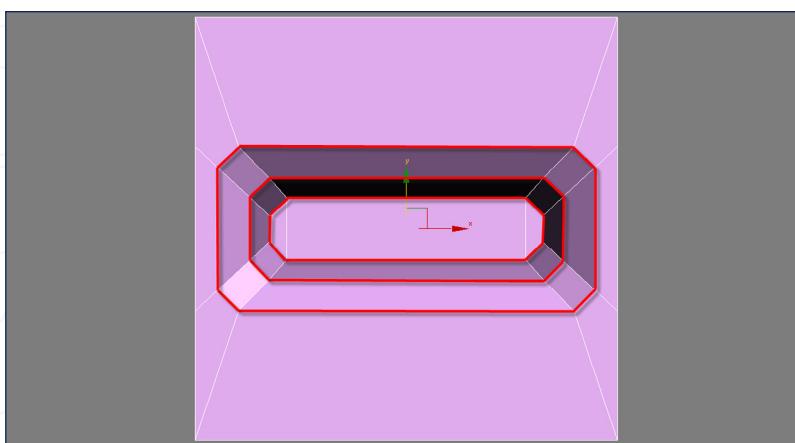


Fig 58

58. Now select all the edges shown below. (Fig.58)

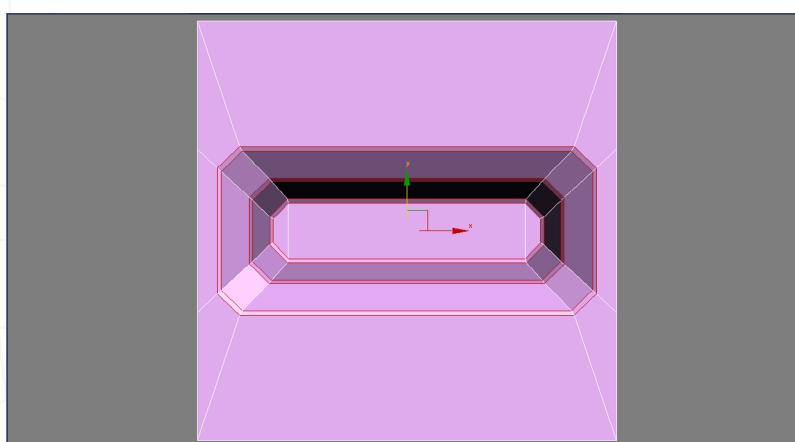


Fig 59

59. Apply a Chamfer as shown below. (Fig.59)

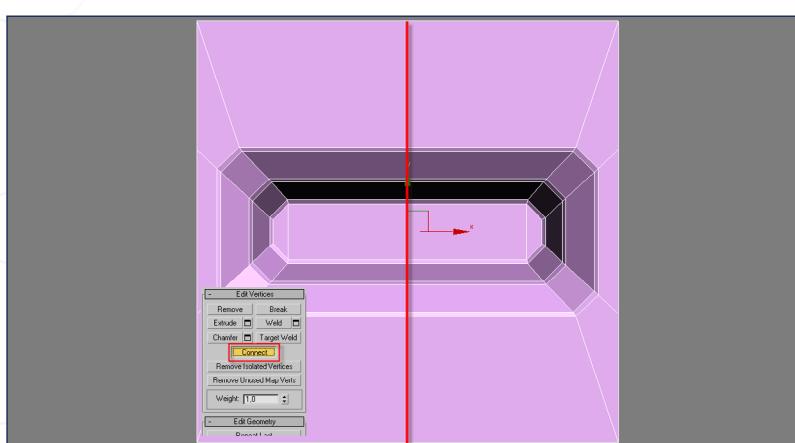
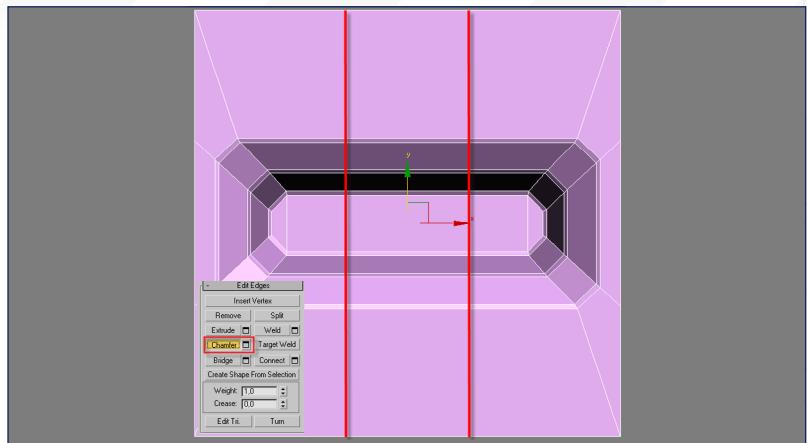


Fig 60

60. Select all the horizontal edges and press Connect to create a new Ring Loop. (Fig.60)

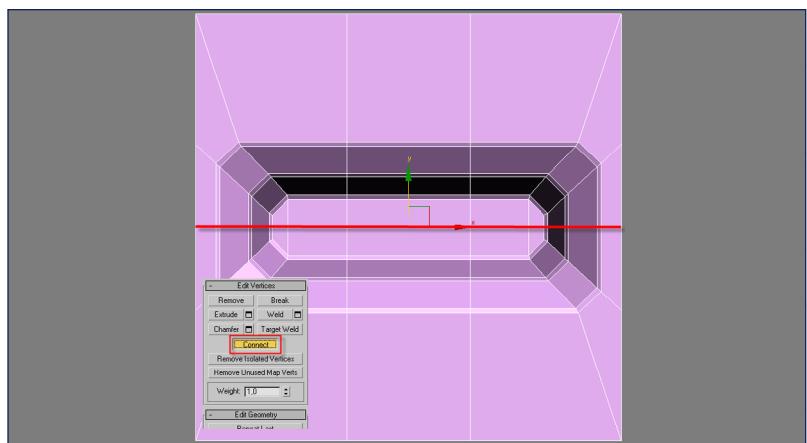
61. Now Chamfer the newly created edges.
(Fig.61)

Fig 61



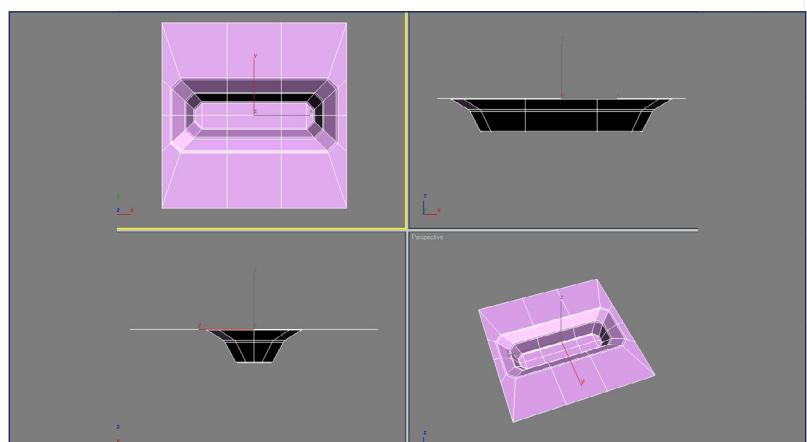
62. Follow the same procedure for the vertical edges. (Fig.62)

Fig 62



63. Here is a preview of the final object. (Fig.63)

Fig 63



64. Here is newly smoothed preview. (Fig.64)

Fig 64



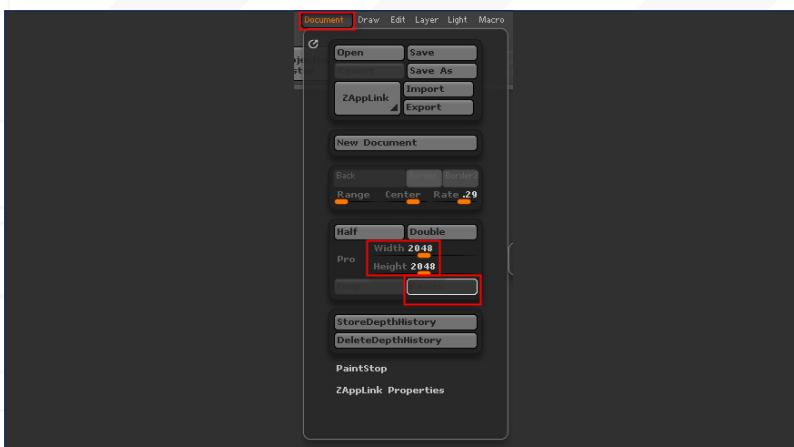


Fig 65

65. We are now going to create an alpha from this object. Go back into Zbrush and change the document parameters as it's important to get the maximum quality. (Fig.65)

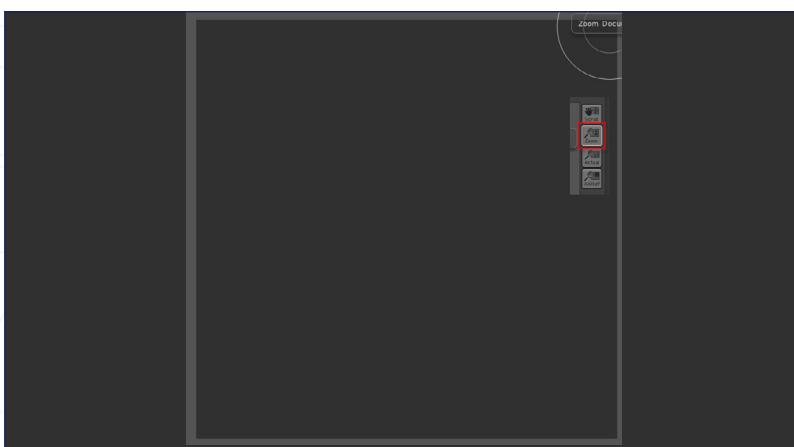


Fig 66

66. Use the zoom button on the right to see the entire Canvas in the screen as it's important to use the entire space. (Fig.66)

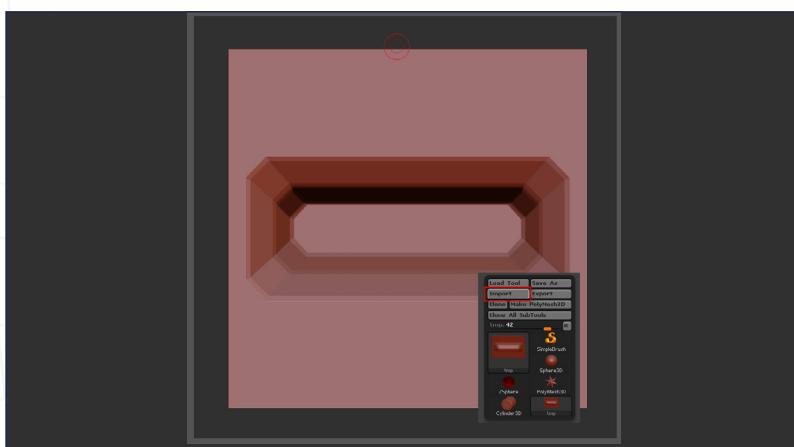


Fig 67

67. Import the object created in 3dsmax. (Fig.67)

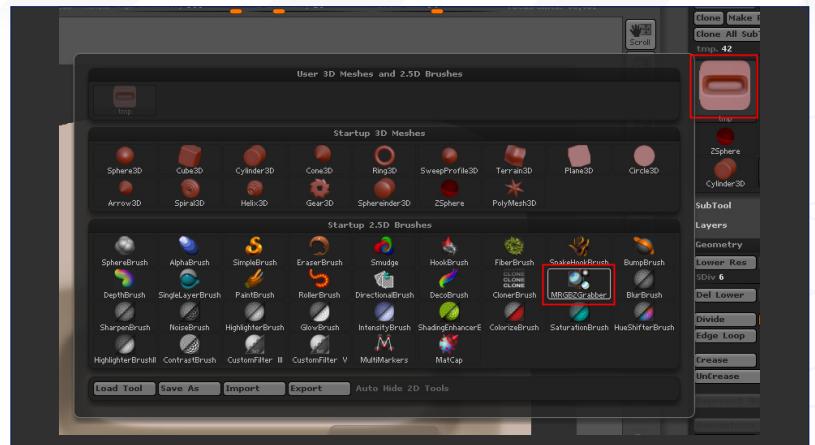


Fig 68

68. Press Crease to limit the shrink effect at the extremity and subdivide it until it's perfectly smoothed. Then Under the Display Property tab press Flip to invert your object. (Fig.68)

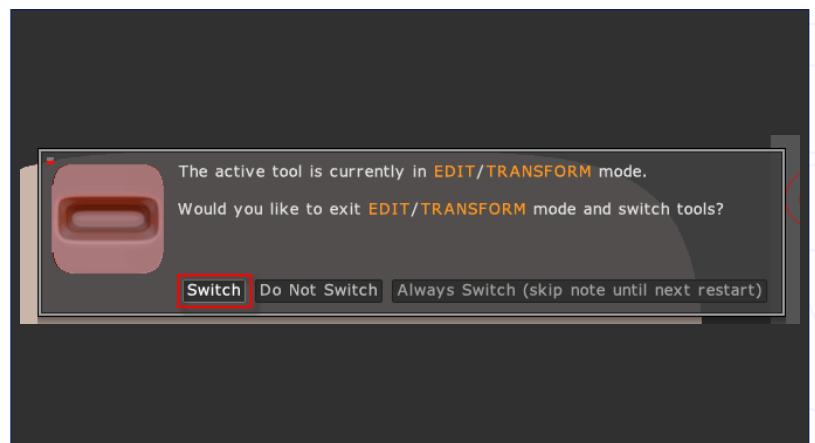
69. Choose MRGBZGrabber in the list shown below. This function will allow us to grab the depth of the object. (Fig.69)

Fig 69



70. Click on Switch when you see the following warning. (Fig.70)

Fig 70



71. It's now time to create the white square. Turn off Auto Crop and draw the square at its maximum size using the entire canvas. (Fig.71)

Fig 71



72. When you release the mouse, the data is sent to the alpha position. You have now your alpha. (Fig.72)

Fig 72



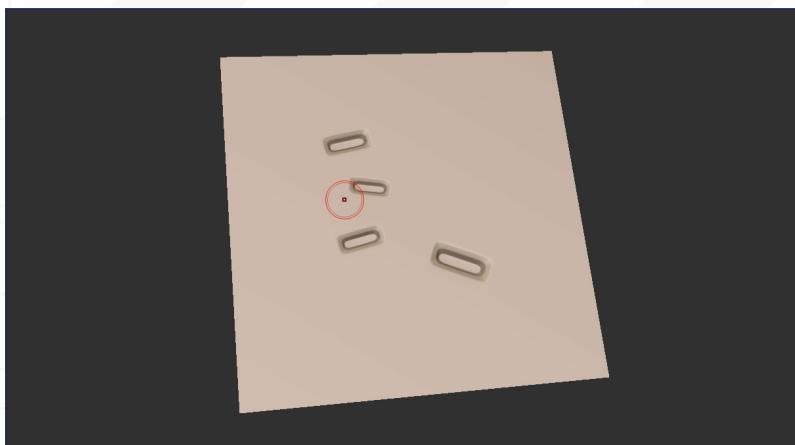


Fig 73

73. Here is a quick test which will be explained in the following paragraphs. (Fig.73)

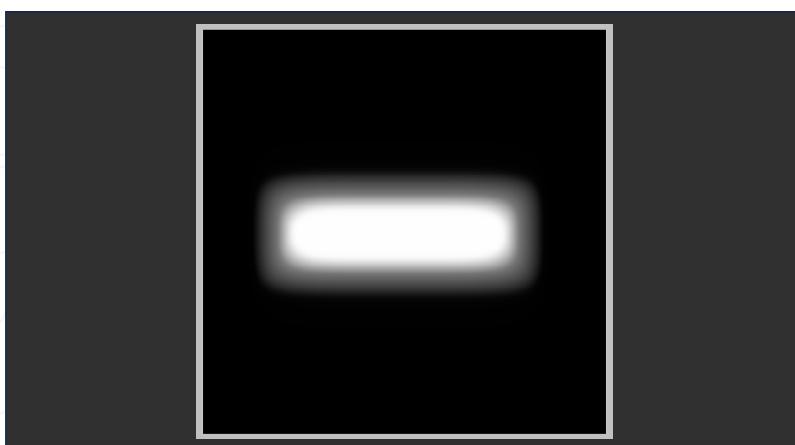


Fig 74

74. It's good to keep the original alpha (2048*2048) but thanks to Photoshop we can reduce it to 512*512 and save another iteration that we will use on the model. (Fig.74)

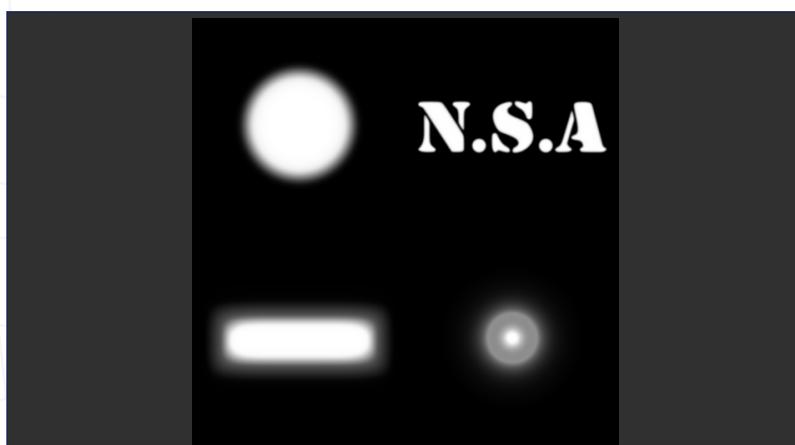


Fig 75

75. Here are the different alphas I used for the chest. I used the exact same method to create them as explained above. (Fig.75)

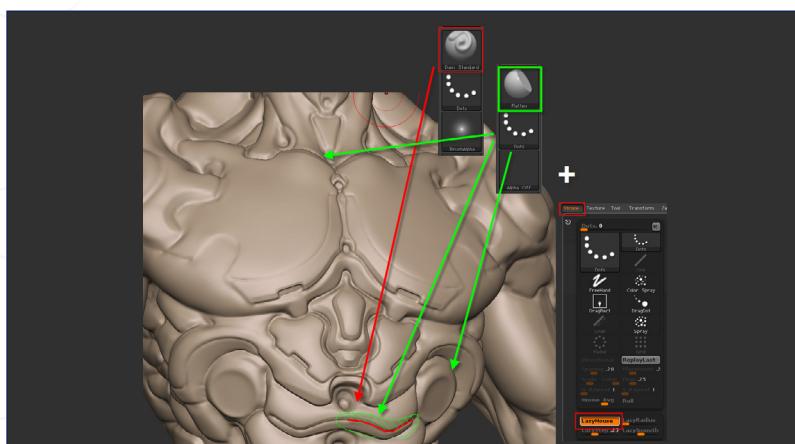
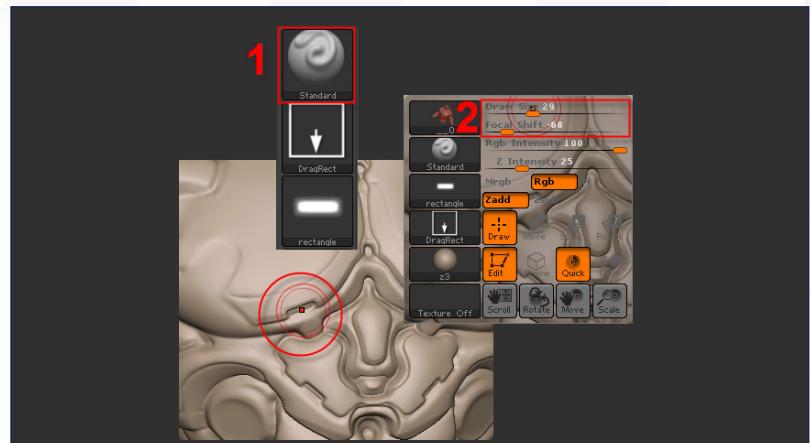


Fig 76

76. Going back to the chest it's now time now to polish it a bit more in the different areas. Still using the Dam Standard and Flatten brushes, we can slowly clean the shape. (Fig.76)

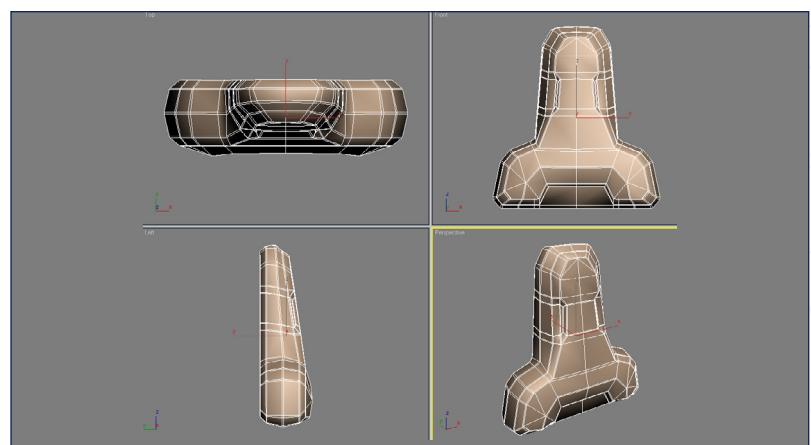
77. To apply the rectangles to your shape, use the standard brush with the DragRect stroke and select the rectangle alpha. Now right click on the model to change the brush parameters, bearing in mind that the Draw Size and Focal Shift have to be close. This procedure is important if you want to create a clean rectangle. You can now place them on your object. (Fig.77)

Fig 77



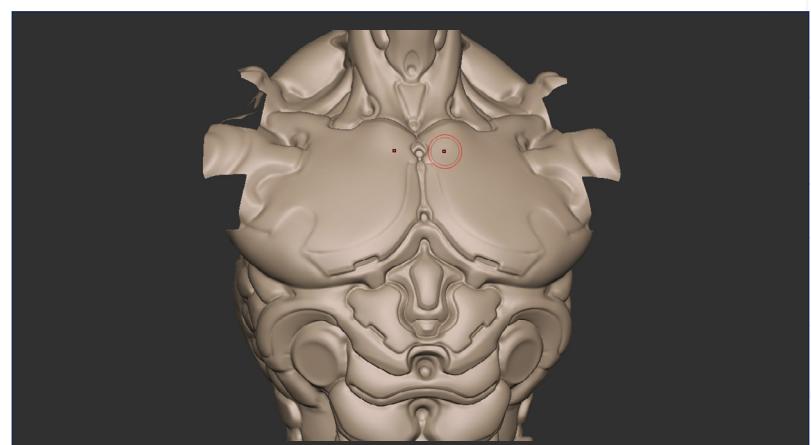
78. Let's create another object in 3ds Max that we will put on the chest. (Fig.78)

Fig 78



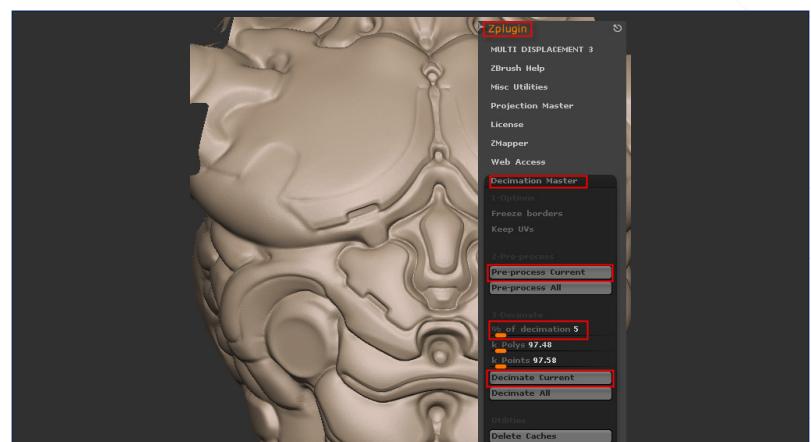
79. Go back into Zbrush with your chest. (Fig.79)

Fig 79



80. We are now going to decimate the chest in order to bring it into 3ds Max and avoid any memory crash. (Fig.80)

Fig 80



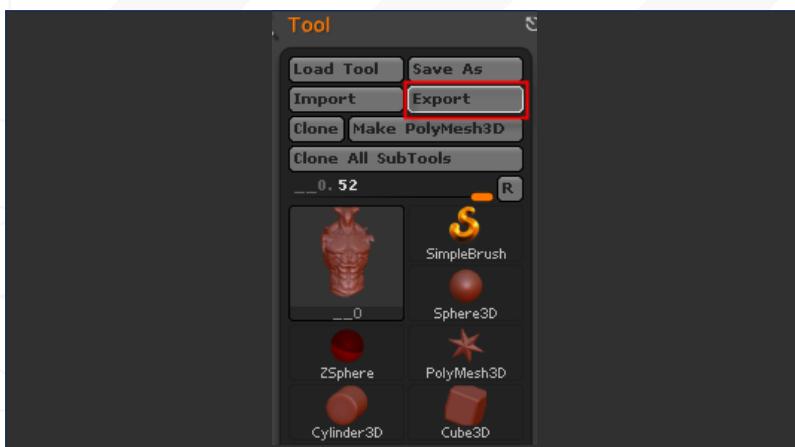


Fig 81

81. Once its done export the optimized chest. (Fig.81)

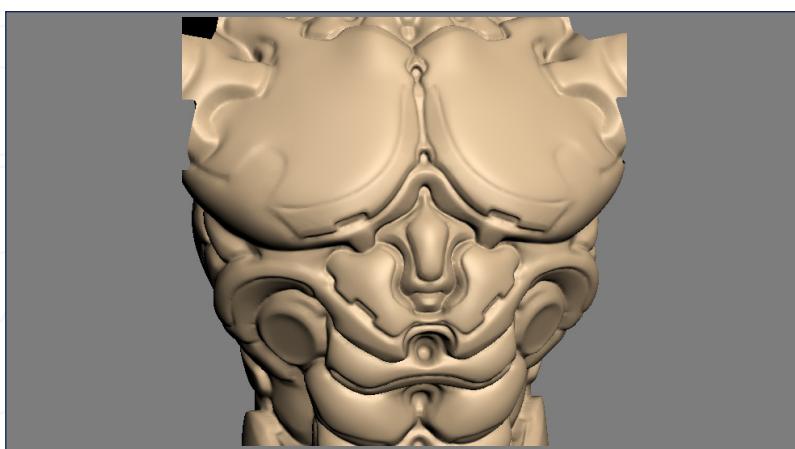


Fig 82

82. Import it in into Max. (Fig.82)

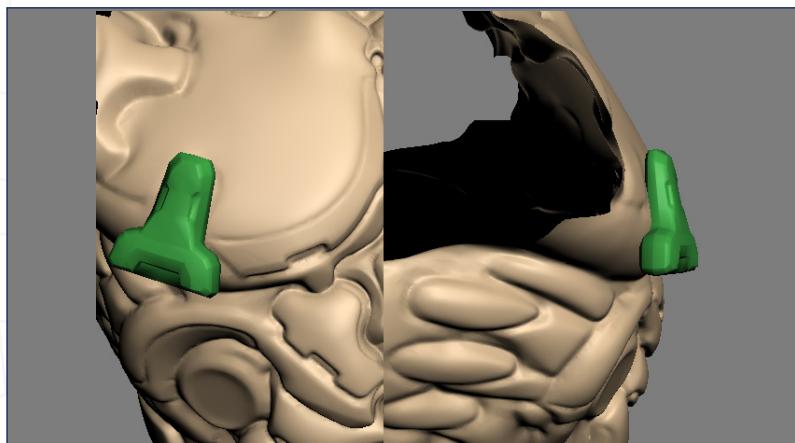


Fig 83

83. Merge the newly created object and position it to mimic what we see below. Don't move vertices as we will match both objects in Zbrush. Export the green object as an obj. (Fig.83)

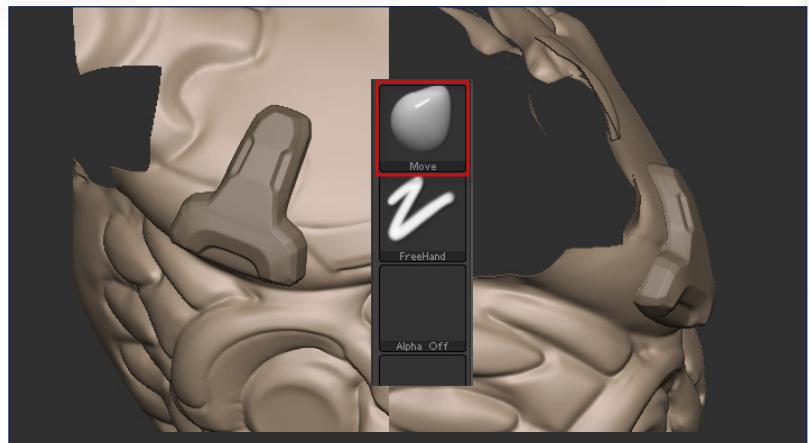


Fig 84

84. Open up Zbrush and import the object into the scene by way of SubTool Master. (Fig.84)

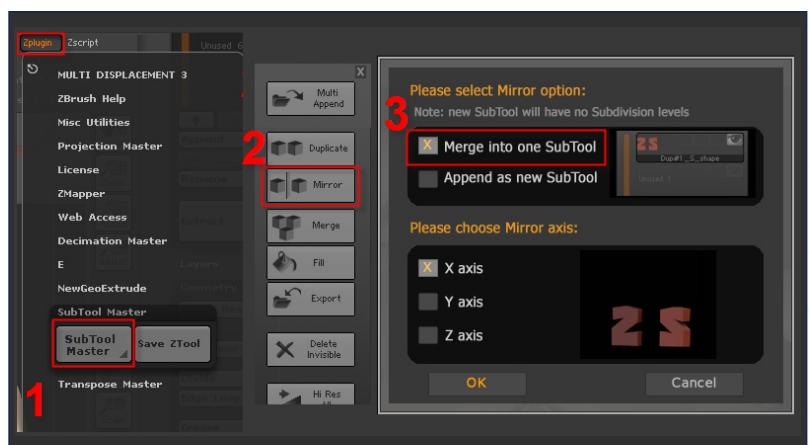
85. Use the Move brush to push the new object a little in order to match it perfectly with the chest. (Fig.85)

Fig 85



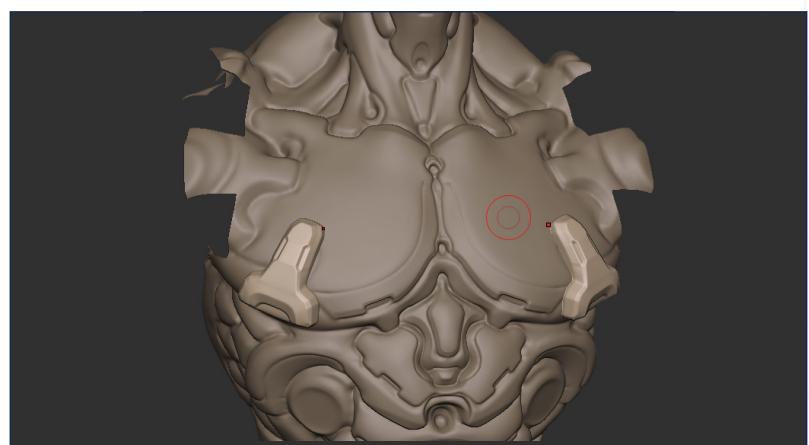
86. Once again, use the SubTool Master to mirror the newly created object. (Fig.86)

Fig 86



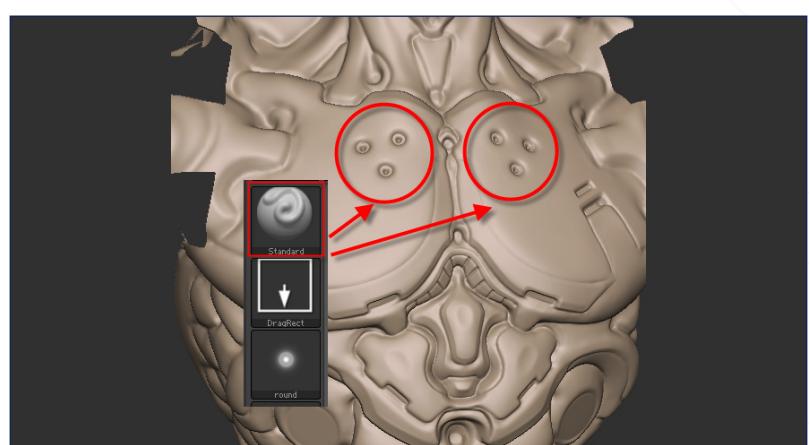
87. Here is the final result. (Fig.87)

Fig 87



88. Use the same technique as explained in step 77 to create these holes. The alpha in the bottom left was used (see 75). (Fig.88)

Fig 88



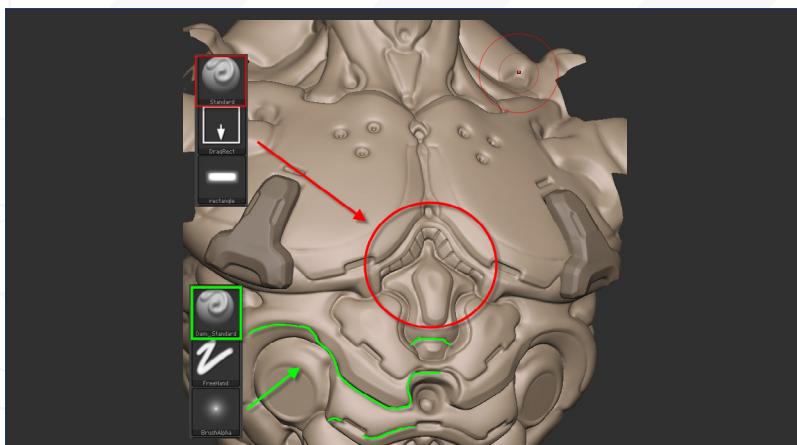


Fig 89

89. I used the rectangular alpha to create these small thick lines (in red), still using the Dam Standard brush with the LazyMouse to polish the lines below (in green). (Fig.89)

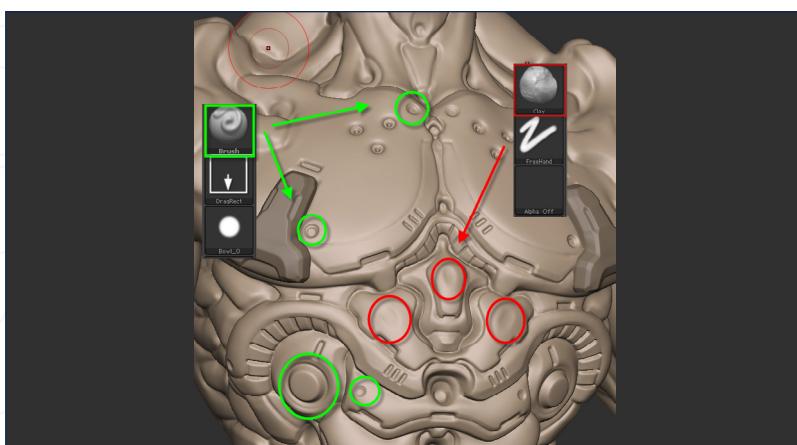


Fig 90

90. I used the same technique to create the holes below (see 75-77) and used the Clay brush with a very low value to slightly flatten the areas shown below to simulate a button effect. (Fig.90)

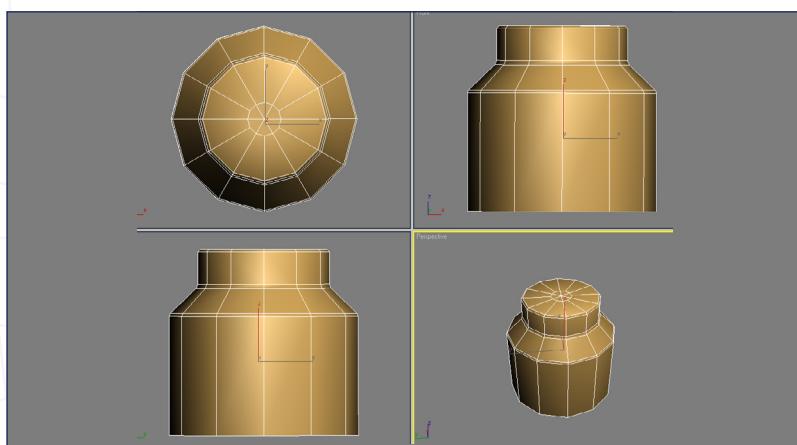


Fig 91

91. Create a new object in 3ds Max starting with a simple cylinder. (Fig.91)

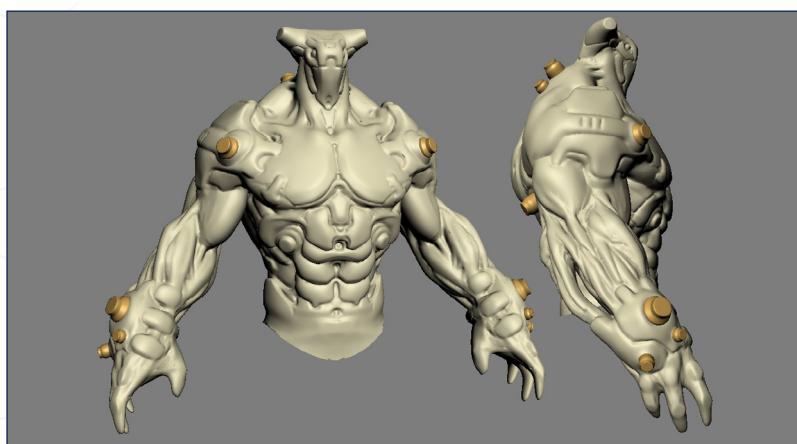
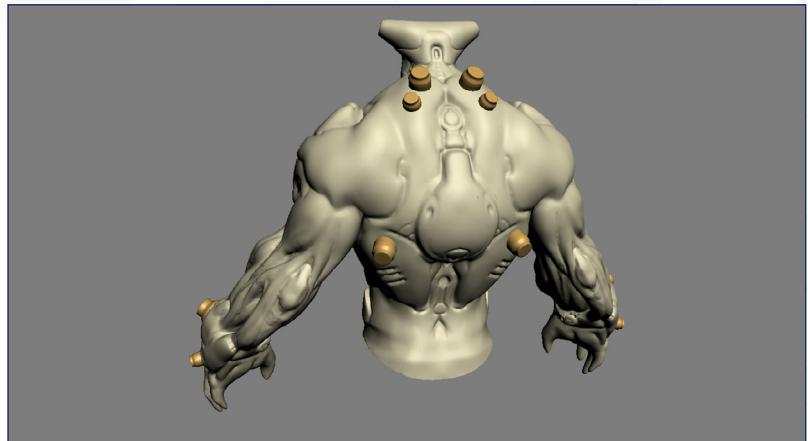


Fig 92

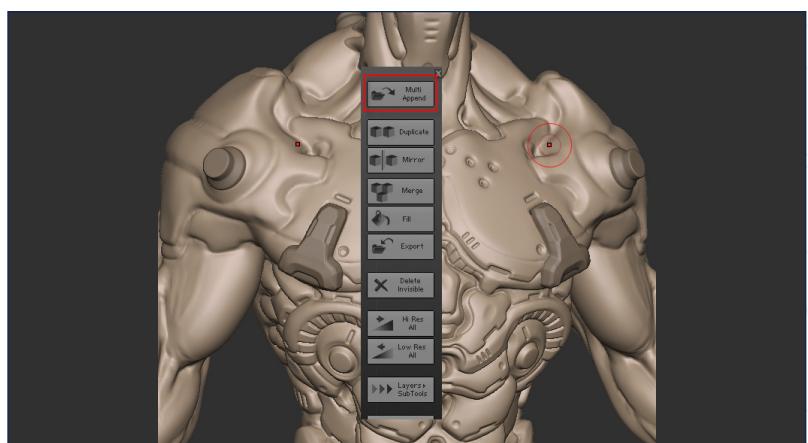
92- 93. Using the same technique explained in step 79 duplicate and move the different objects on the chest to get something similar to the following. (Fig.92 – 93)

Fig 93



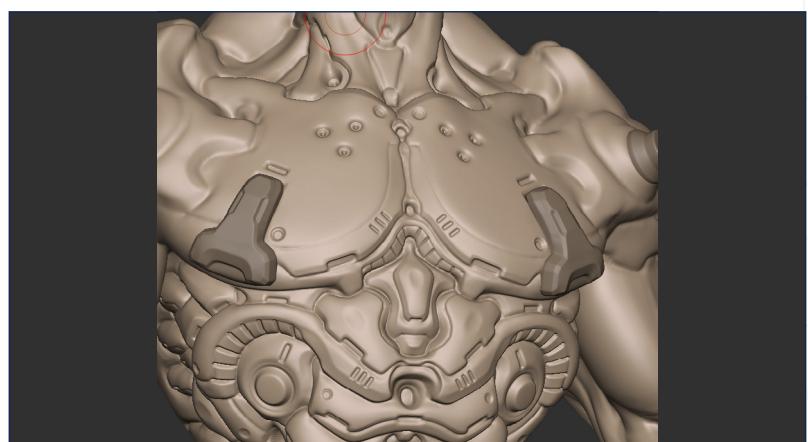
94. Once again bring these new elements into the scene by using the SubTool Master plugin. (Fig.94)

Fig 94



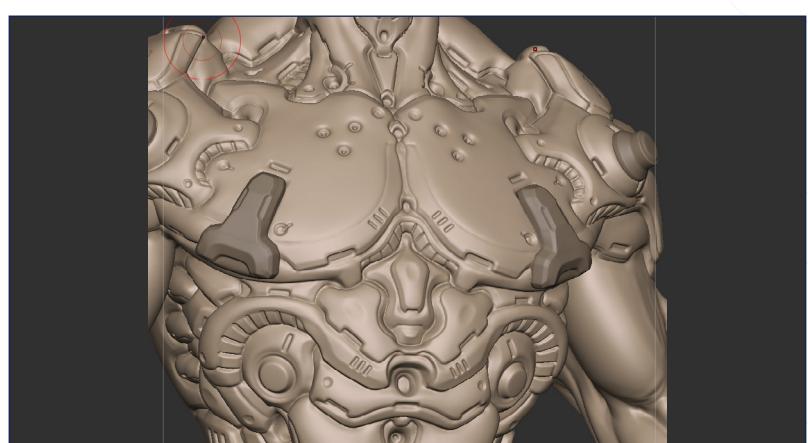
95. Here is a current preview with some more changes using the same methods involving alphas and the Dam Standard brush. (Fig.95)

Fig 95



96. We use the same technique for the shoulders and neck. More screenshots will be shown later to focus on the different areas. (Fig.96)

Fig 96



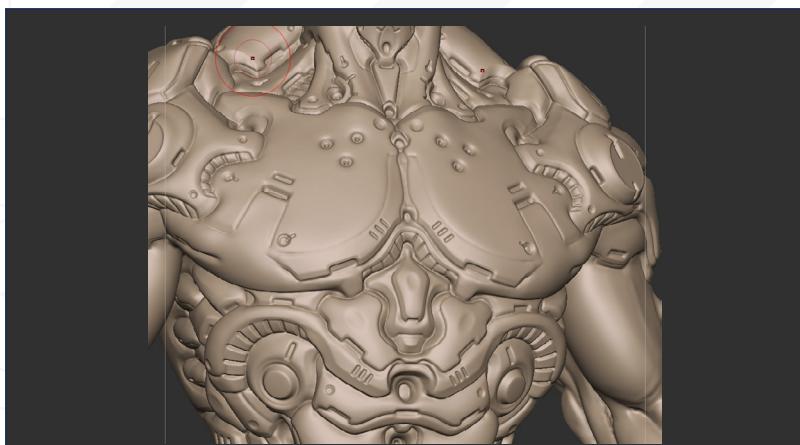


Fig 97

97. Here is a final preview. (Fig.97)

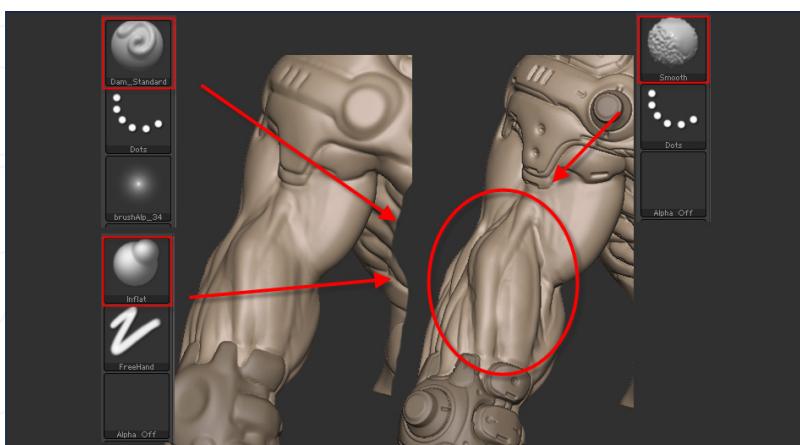


Fig 98

98. With the armor area done it's now time to polish the arm which is a more organic element. Use the Inflat and the Smooth brush to gradually bulge out the volumes. (Fig.98)

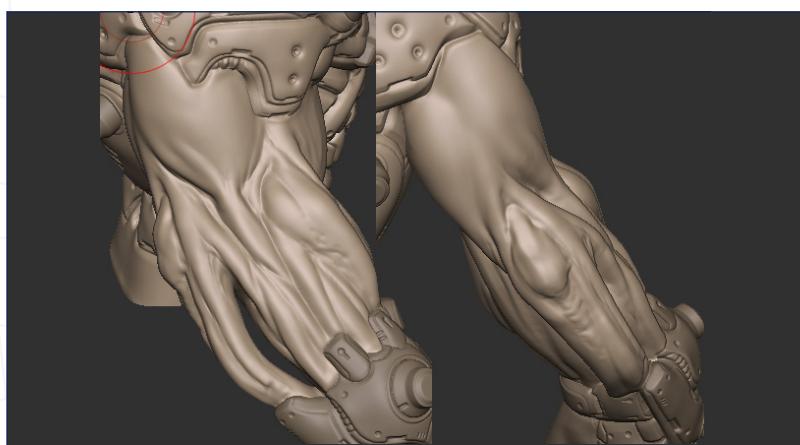


Fig 99

99. Here are some more angles to see the volumes. (Fig.99)

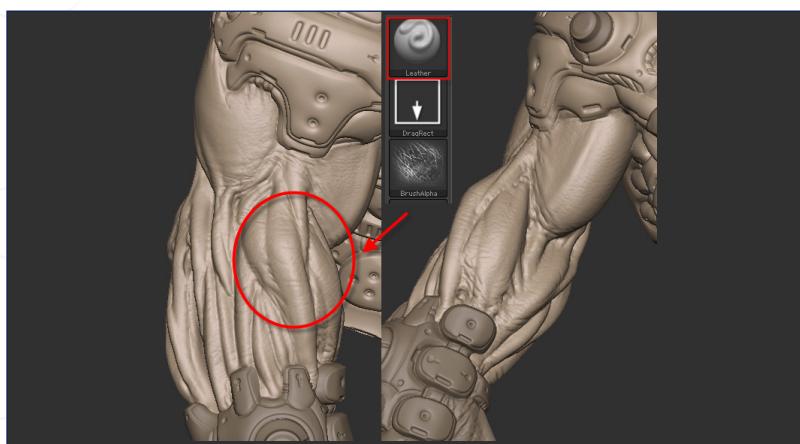
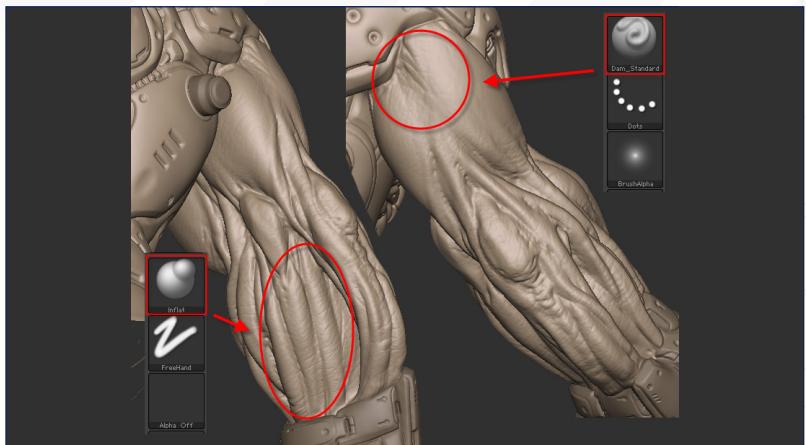


Fig 100

100. When you are satisfied with the volumes, add more small skin details courtesy of a specific alpha (provided customized brush). (Fig.100)

101. Once again use the Dam Standard brush to accentuate some holes in order to make it appear more organic. (Fig.101)

Fig 101



102 to 111. Here are some screenshots to represent the key areas to help you visualize the process. The same techniques were used to reach this stage and mainly incorporated customized alphas and the Dam standard / Flat brush with the LazyMouse. It's up to you now to create more specific alphas and to furnish your own library with small and simple mechanical objects. (Fig.102 – 111)

Fig 102

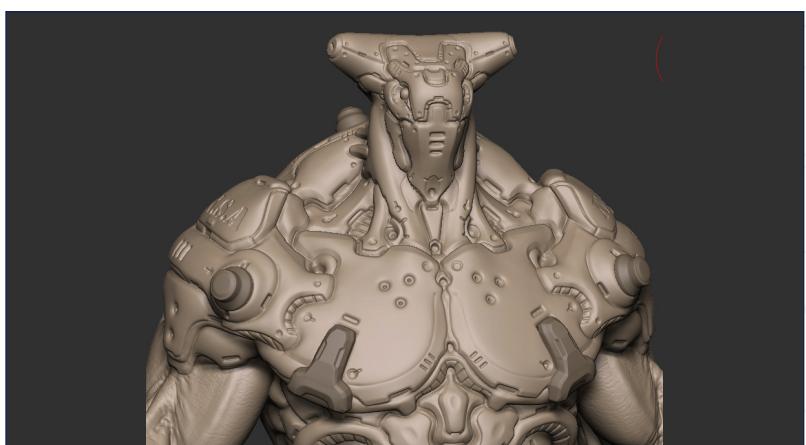


Fig 103

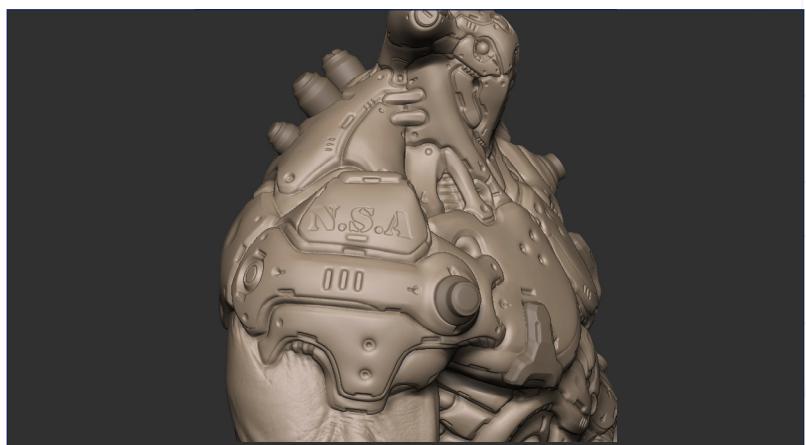


Fig 104



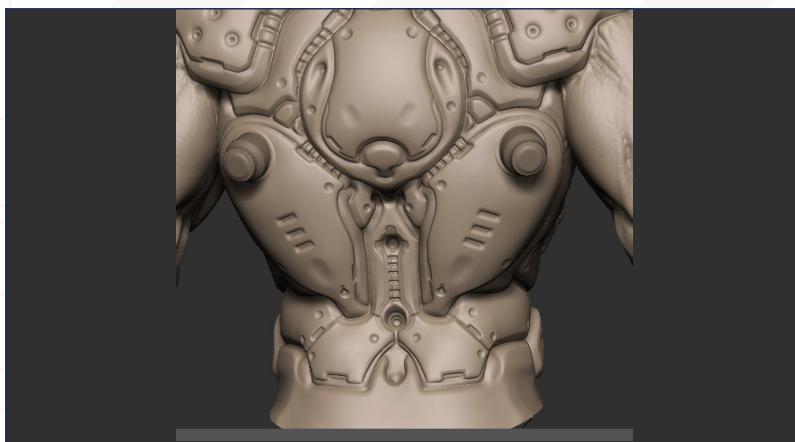


Fig 105

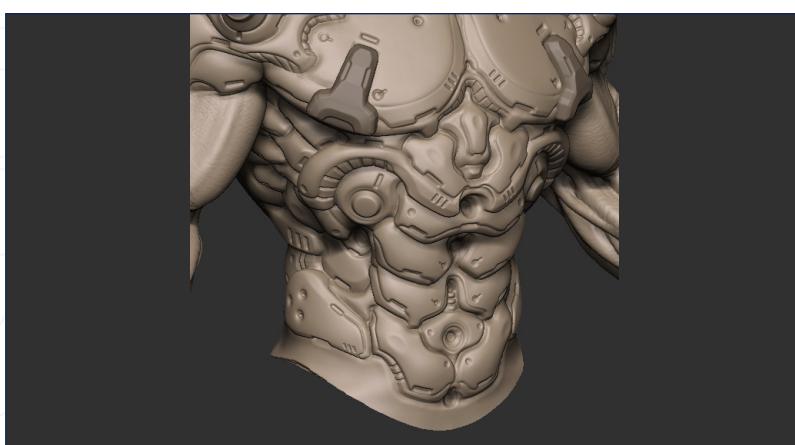


Fig 106

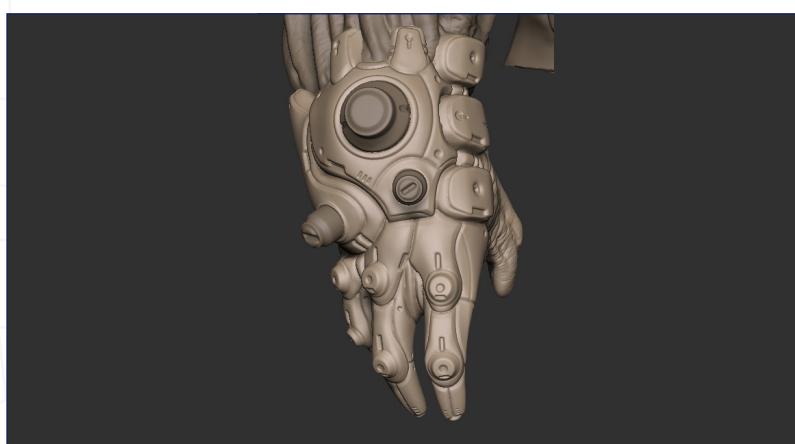


Fig 107

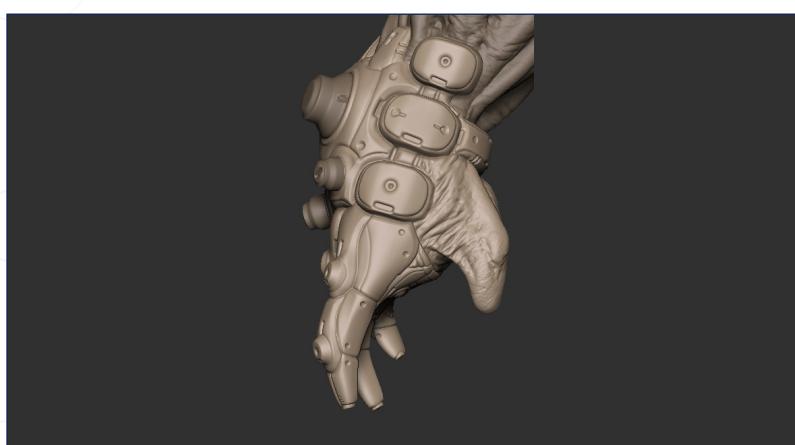


Fig 108

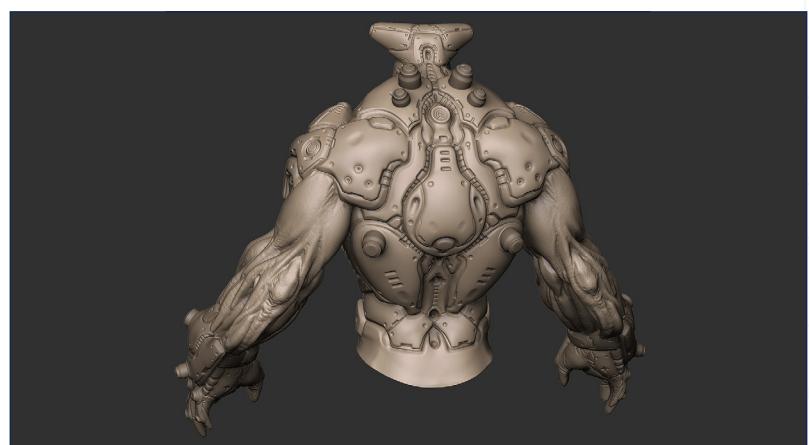
Fig 109



Fig 110

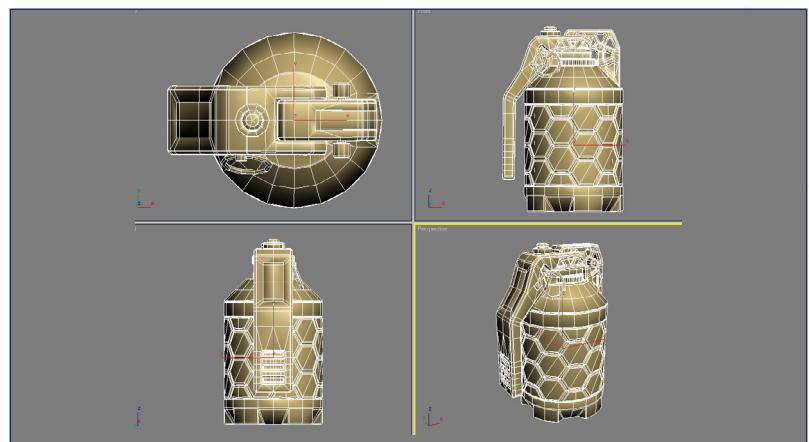


Fig 111



112 to 117. Here are a grenade and rifle which were created in 3ds Max to add a bit more interest to the character. (Fig.112 – 117)

Fig 112



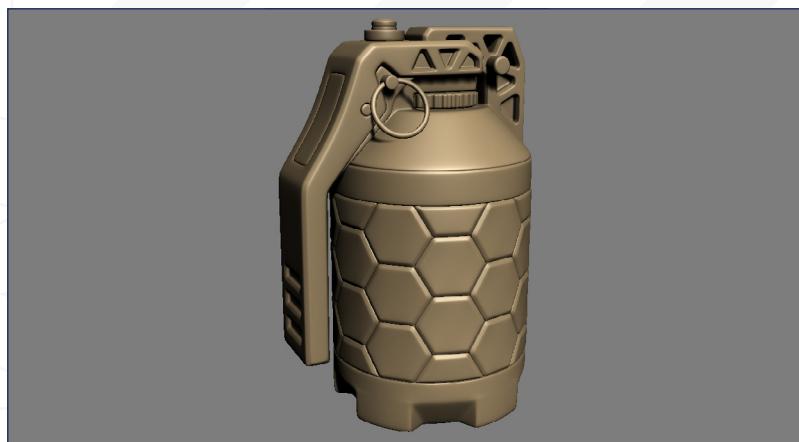


Fig 113

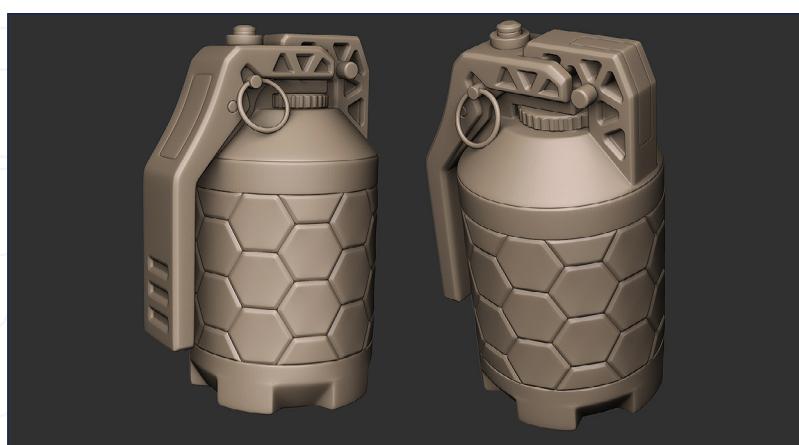


Fig 114

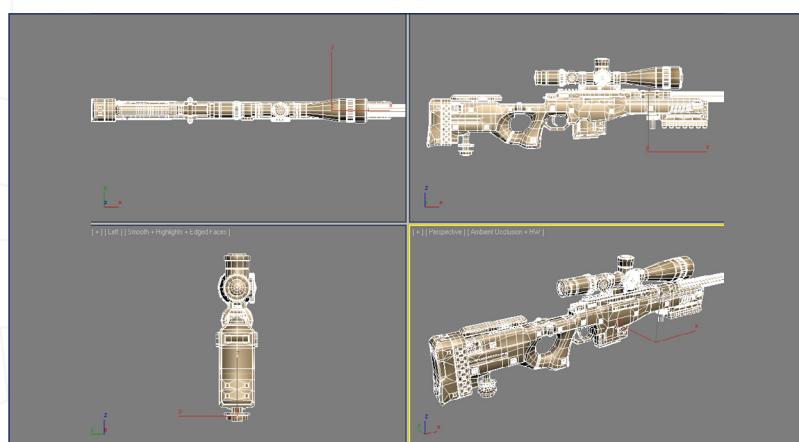


Fig 115



Fig 116



Fig 117



118-119-120. I also added a simple military pouch to create some extra detail. Here are the different sculpting steps. (Fig.118 – 120)

Fig 118



Fig 119



Fig 120





CEDRIC SEAUT
For more from this artist visit
<http://www.khalys.net/>
or contact
cedric.seaut@voila.fr

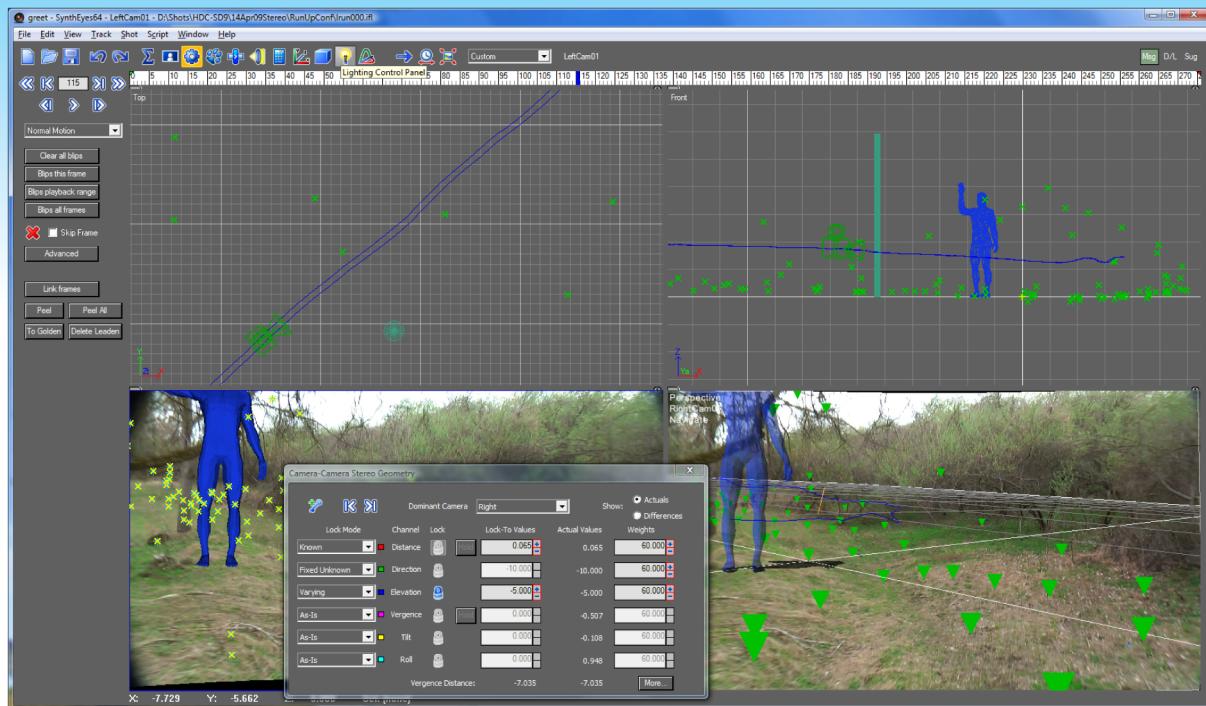




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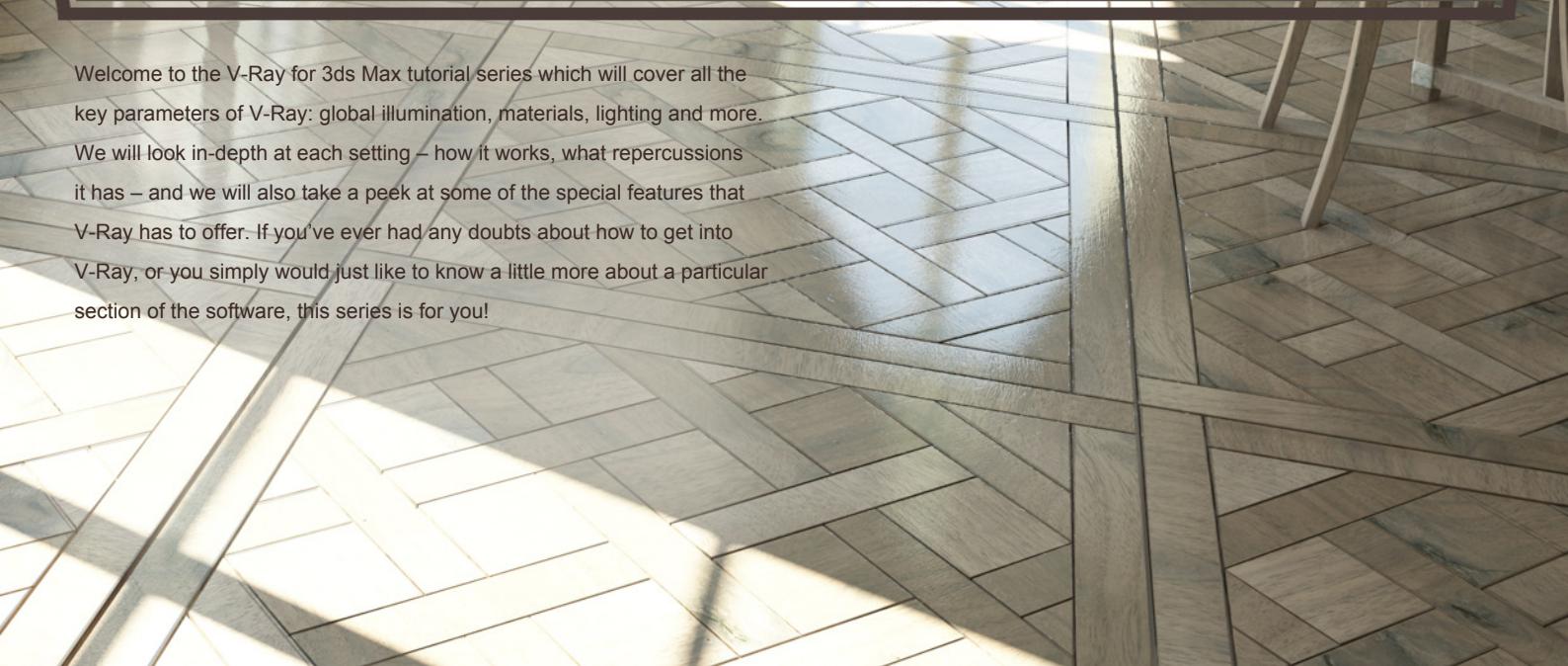
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V-RAY FOR 3DS MAX

CHAPTER 5 - VRAY PLUGINS



Welcome to the V-Ray for 3ds Max tutorial series which will cover all the key parameters of V-Ray: global illumination, materials, lighting and more. We will look in-depth at each setting – how it works, what repercussions it has – and we will also take a peek at some of the special features that V-Ray has to offer. If you've ever had any doubts about how to get into V-Ray, or you simply would just like to know a little more about a particular section of the software, this series is for you!

V-RAY FOR 3DS MAX CHAPTER 5 - VRAY PLUGINS

Software Used: V-Ray, 3ds Max

For the final installment we will be looking at some of Vrays extras, some are very important such as displacement, physical camera, or Vray proxy; others are just for fun.

A: VRAY DISPLACEMENT

With Vray you don't plug the displacement map in the material editor. You have to add an object modifier in order to use displacement. (Fig.01)

There are three types of displacement mapping in Vray, 2D, 3D and subdivision.

2D is preferred in most cases, this solution keeps all the detail of the displacement map and may use from 8 to 32 bit floating images which gives much better detail, however 2D mapping needs to store the texture during render which can take up a lot of RAM. In such cases render times will become very long and sometimes, max might even crash the computer. In these cases you can either use 3D mapping solutions, or use a very high resolution mesh using Vray proxy. Another downside: 2D mapping doesn't work with procedural maps.

Resolution: preferably match with the textures resolution if the map is 2048*2048 set it to 2048.

Precision: Lower this setting for planar objects to 1, increase for curved objects, if you get spots on the mesh increase this value.

Tight bonds: Check for faster renders, without loss of quality in most cases.

3D Works with procedural maps but only uses 0.0 to 1.0 values, no negatives, and this will not keep all the map details.

Edge length: Controls the edge minimum size of subdivided triangles, lower values means higher quality with longer render times.

View dependent: determines if the edge length is computed on a screen size, or world units. Check this for faster render times this is very useful for landscapes.

Max subdivisions: Controls the number of subdivisions per object triangle squared. For example a value of 64 means for every triangle Vray will subdivide it $64 \times 64 = 4096$ at the most. Simply Increase for more details.

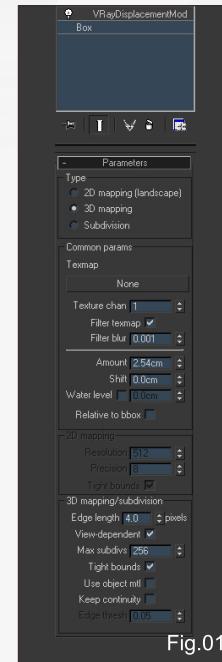


Fig.01

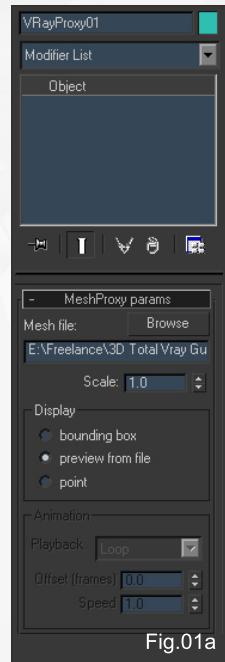


Fig.01a

Keep continuity: Check to remove holes in the displaced mesh.

Subdivision Will work the same way as 3D mapping, but will also smooth the object. In most cases 2D mapping has the best quality and renders faster, why bother with the others.

Note: Vray's displace does not work with max's standard shadow maps

B: VRAY OBJECTS

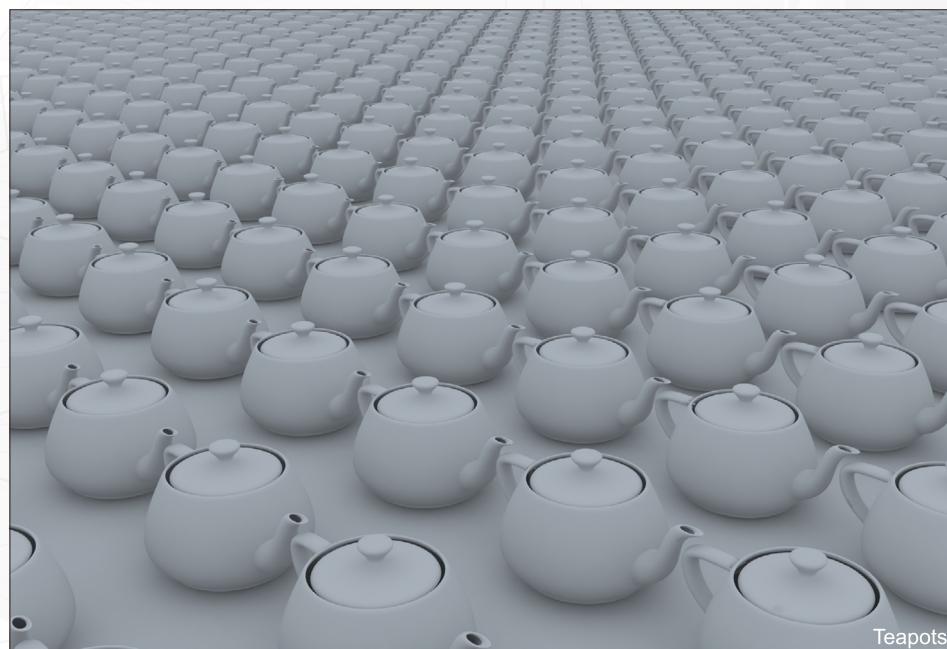
Vray proxy: Now here is one of Vrays super powers. Vray proxy lets you render as much polys as you like, far more than Max's limit.

It's quite simple, convert your object into a simple mesh with UV data, whether it is animated or not, export it to your hard drive as a vrmesh file, then, re-import it with proxy object.

If you don't know where to find the Vray export window, just right click in max, then Vray mesh export. (Fig.01a)

Note: Once more Vray proxy does not work with standard shadow maps.

Fig: Teapots



Here is a render of 10000 teapots each taking around 9000 polys which makes 90 million polygons! It was rendered with GI; all as Vray proxy and a Vray plane and rendered in 2K format. Apart from the hard drive swap RAM used was under 400Mo, and above all it rendered in 2 minutes and 11 seconds.

Vray plane

This is a very useful object. It creates an infinite plane displayed very simply in the viewport.

Vray fur

This is a simple procedural fur plugin within Vray. It is pretty straightforward, but has no dynamics. It would be useful for stills with grass. (Fig.02)

C: VRAY CAMERA

A very interesting part of Vray, and quite useful, this is a physically correct camera, with all the settings you would find in a DSLR, a Film camera, and a DVcam. In order to really use this you need some understanding of photography I suggest looking for some info about the basics of photography. With this information you will be at home with these settings. (Fig.03)

Note: the cameras shutter speed override motion blur, same for the depth of field.

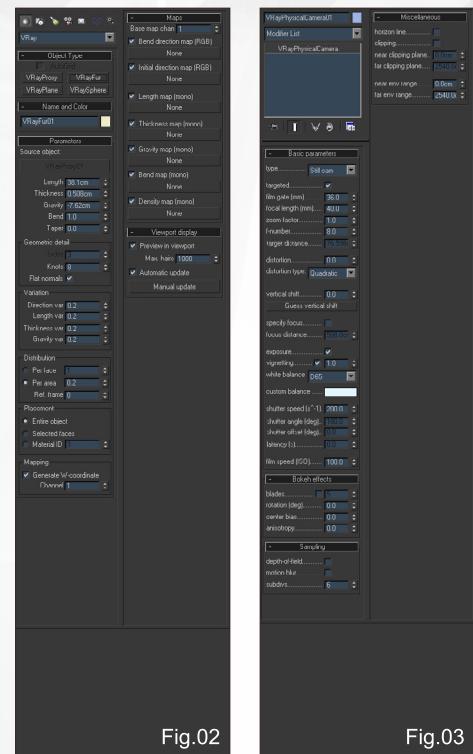


Fig.02

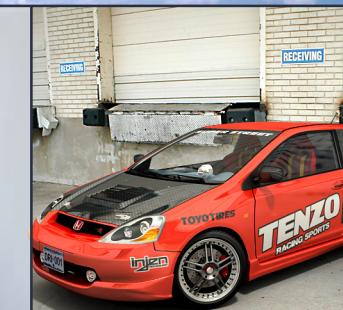
Fig.03

Fig: Fur



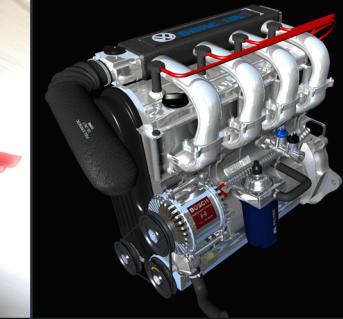
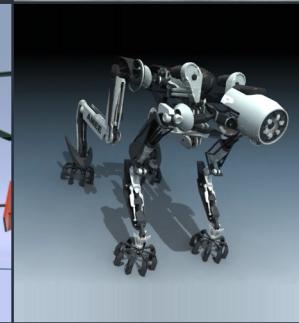
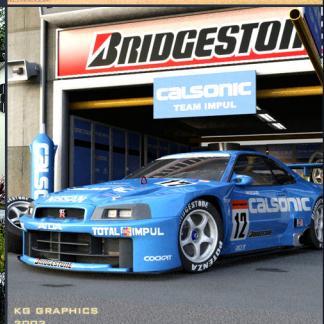
vRay DEMO 1.50.3P2 | file: proxy.ms | frame: 0094 | primitives: 442766 | render time: 09:11m 12.0s

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CHAPTER 1 | THIS ISSUE

Planning your Rig

CHAPTER 2 | NEXT ISSUE

Knowing your Tools

CHAPTER 3 | JUNE ISSUE 058

Rig Creation – Part 1

CHAPTER 4 | JULY ISSUE 059

Rig Creation – Part 2

CHAPTER 5 | AUGUST ISSUE 060

Facial Rigging

CHAPTER 6 | SEPTEMBER ISSUE 061

Scripting



The aim of these tutorials is to show and explain how you might tackle rigging your 3D character for animation. These tutorials will give help and advice to novices and experts who are looking to build on their rigging skills or approach rigging for the first time.

The series gives a detailed step by step guide as to how to approach rigging but also shows us how to tackle common problems and issues that regularly occur even in a professional environment. The artists will be reflecting on working in the industry as well as talking us through their individual approaches to creating the best rigs possible.



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TUTORIAL

INTRODUCTION TO RIGGING: 1 - PLANNING YOUR RIG

Software Used: 3ds Max

CHAPTER OVERVIEW

Welcome to this Introduction to Rigging tutorial series for Max. These tutorials are aimed for Max users that want to get proficiency in rigging, so basic notions of navigation and basic use of the software will not be explained. The objective of this series for beginners is to get you comfortable with rigging and the tools Max has to do this task. This tutorial will make you familiar with the concept of rigging and will show you how to optimize your work, to solve problems, to create good control for the animators and have good deformations on the mesh. The goal of this tutorial is to get your rigging skill to a professional level and be able to work as a rigging artist.

We will have a brief explanation and samples of Maxscript in the next chapters. Maxscript is the script language of Max, and you will use it to code. Code can sound scary but it will do Max perform tasks for you, and will make your life much easier and speed up your way of working. Maxscript is a really powerful tool that will allow us to optimize all the repetitive tasks. Through simple examples, you will get confidence with it and see all the potential you can achieve when

you keep using it in your future rigs in a daily basis.

The concepts we need to know before approaching a rig will be defined in this chapter. We will also see how to face the task of creating a rig. We will speak about working in a professional environment and the issues that usually arise when working as a rigger at a studio.

PLANNING AND REFERENCE

REFERENCE

Before starting any new rig for any type of character, it is important to get references, it doesn't matter the kind of character or creature we want to rig. Before we even start Max, we should look at references. Internet and drawing books are great tools to get info.

It's a good practice to find references for these items: controls, bones, deformations and facial expressions.

CONTROL REFERENCES

Control for a rig is the control you will give the animators to animate a character. I recommend looking at the work of other rigging artists, not only people that use 3ds Max but any other application. At the end of the day almost

everything can be translated to other software, the important thing is the concept.

There are a lot of forums to help you get inspired and a lot of demo reels that show how other people rig their work. And there are a few available free rigs that you can download and play with to decide what you like or dislike about them.

Try to save and categorize all the reels and demo rigs you find on internet. This is normally quite helpful when you want to start a new character; seeing other people approach is always inspiring.

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www.paulneale.com
<http://www.luima.com/>
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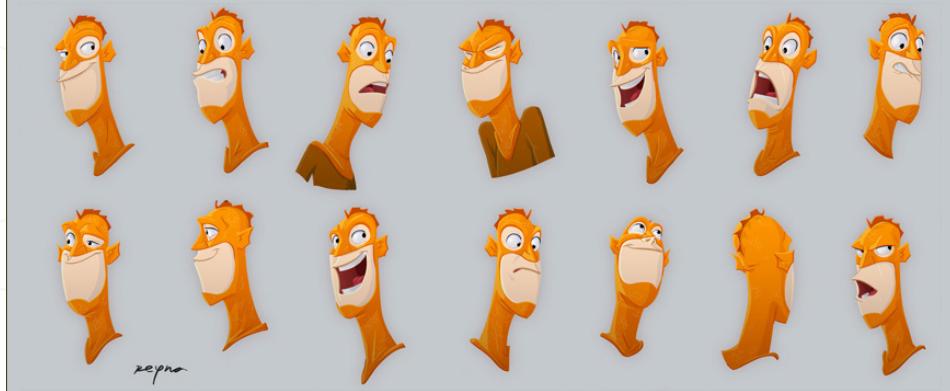
BONES REFERENCE

We need references to help us to decide where to place the bones in our 3D mesh. Use any search engine and look for references for the skeleton of the character you want to rig. This will help to decide where to place the bones in our 3D package.

You don't have to recreate exactly the same amount of bones as the real skeleton. For example, a vertebral spine has 38 or 39 elements and when we translate this to a 3D rig, we will use between 3 and 8 bones only, enough to achieve good deformations. Something similar happens with a human hand: it has 27 bones and we will use 15 for our rig.

DEFORMATION REFERENCE

It's always good to search for videos before starting your rig; Sites such as Youtube or Framepool will help you very much. Remember to be specific in your search, like adding the specific area of the body you want to focus on, for instance: hand, shoulder. Use two different types of movement and action in the search.



Concept Artist Tony Reyna | © Tony Reyna

Fig.01

This can help you to see the deformation of each body area, for example: running, walking, jumping.

Drawing books are another great source of inspiration, for both humans and animals. The explanation of how to paint a human or animal in different poses and how the shapes change can be easily translated to 3D. If you are working on a human character, your own body and a mirror will be your easiest reference.

FACIAL EXPRESSIONS REFERENCE

The way a person shows feelings (such as happiness, sadness, anger) is mainly by facial expressions.

The other way of transmitting feelings is the body language, but this is a job for animators. As a rigger, you will have to provide them with the tool to achieve what they need, so study the facial expression and make a face rig that can provide what animators want is necessary for a good rig.

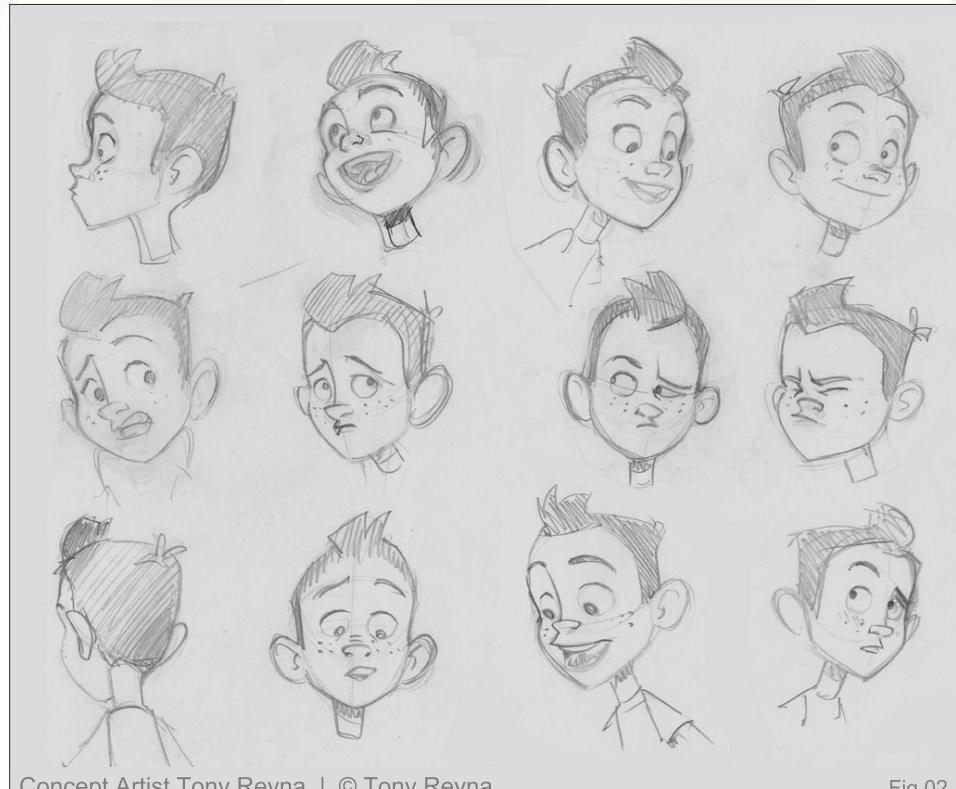
Internet is again a great source. For cartoony characters, 2D animation and concept artist facial expressions drawings are always the best choice. **Fig.01** and **Fig.02**

PLANNING

In a professional environment you are always asked how long it will take you to rig a character.

ALIEN TO DO LIST	■ PRIMARY	■ SECONDARY
FK/IK ARM	●	
FK IK SNAP	●	
SPINE	●	
SPINE STRETCH SQUASH		●
INDEPENDENT MOVEMENT FOR THE HIPS		●
IK LEGS	●	
FK LEGS	●	
SNAP FK IK LEGS	●	
LOOK AT FOR THE EYES	●	
FK NECK	●	
FK/IK NECK WITH STRETCH SQUASH		●
FACIAL EXPRESSIONS	●	
EAR CONTROLS		●
HEAD FK	●	

Fig.03



Concept Artist Tony Reyna | © Tony Reyna

Fig.02

This is always difficult to know, and it is quite normal to be over-positive and think that a rig will be easier and quicker to do than it turns out to. Be careful with this, it is better to be realistic and get the job done in time than promising a quick job and then being late. Your supervisor will prefer a realistic time and this will help to schedule the work properly. A good start is a To Do List. Write down all the tasks you need to complete the rig, together with an estimated time for each task. If you want to investigate or do a bit of R&D for a certain part of your rig, write it down too. Please bear in mind that not everything will go perfect from the first time and you will probably have to do changes, so adding some extra time for potential problems is always a good idea. The experience is an advantage - if you had to rig a similar character in the past, you will know how to approach it properly and be faster the second time.

Normally the time you get to do a character is limited. Distinguish between primary and secondary tasks. Primary tasks will be the ones you have to get done in order to have a rig ready for the animators. Secondary ones will be

those that will make the animators' work better or get a nicer deformation but are not essential; if they are not included in the rig, the animation can still be done. If you manage to get all the primary tasks of the rig done and still have a bit of time left, you can go for the secondary tasks that will be a good plus to your already good rig. But having all the primary tasks done will ensure animators can do their job. **Fig.03**

WORKING WITH OTHER ARTISTS

In a professional environment riggers are always working with other artists. As a rigging artist you will be involved with other disciplines - modellers, texture artists and animators. You will have to work together with modellers that will provide the mesh to begin your rigging with. It is always good practice to review the meshes with them to be sure they will achieve good deformations. Experience will allow you to know when a mesh is good or is bad and what makes a mesh deform well or not.

The technical word for a mesh that does good deformation is topology and you can search on

internet to find samples or discussions about it. My opinion of what a perfect topology is has changed during my professional career, it is a debatable subject. You will have to ask the modeller to put the character in a certain pose that will make the rig much easier. The T pose is one of the most commonly used. **Fig.04**

Modellers must be sure that all the objects they have created will match a series of technical checks that will allow you to rig a mesh without problems.

Animators will be the final users of your rig, so it is a good practice to keep a constant feedback with them. Asking them what they like or dislike about your rig will be always positive. Be ready to get critics to your work and be open to suggestions. At the end of the day the animator is going to spend all his working time with the rigs you created. And the suggestions they give can improve your rig and the final result.

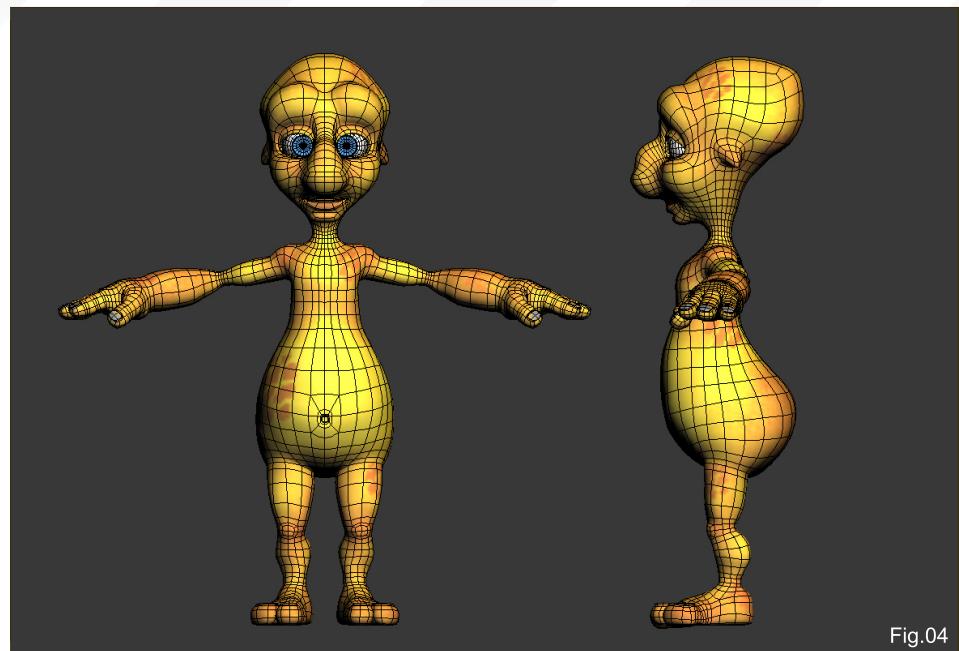
Once you finish the rig and set the characters in different poses, it is a good idea to do a few renders in collaboration with the texture artist in order to check if the textures don't stretch or hold nice each pose. In quite a lot of cases the texture artists have to retouch their UV's or textures to make the character work nicely in all the poses.

BEING ORGANIZED

When you work as a rigger, it is important to be organized. You will not be the final user of the rig, animators will use your rig and lighters will have your rig in their lighting scene.

NAMING OBJECTS

Naming is a good way to distinguish objects and to know what object is for. It will be difficult to know what each object does if things are not named properly when you go back to an old rig. That is why naming each object is a must in rigging. Well used names are a powerful way of organizing things inside your Max scene. I recommend starting all the names of the objects for a character with the name of the character



followed by underscore “_” For example: all the objects in our rigs will start with “Alien_” I get a really quick way of selecting the whole rig for that character when I select the objects with “character_**” **Fig.05**

This is the rule to name objects:

Character's name + “_” + Side + “_” + Part + “_” + Type of object and Kind of object

Side: to define what side of the character we are working on. It is only a capital letter:

L left side of the rig

R right side of the rig

C no side, when an object is in the centre of the rig.

Part: specific part of the rig

Type of object and Kind of object: combination of two capital letters. The first letter will be the type of object and the second one the kind of the object.

First letter - type of object:

M mesh object

S shapes object

B bone object

D dummy or helper object

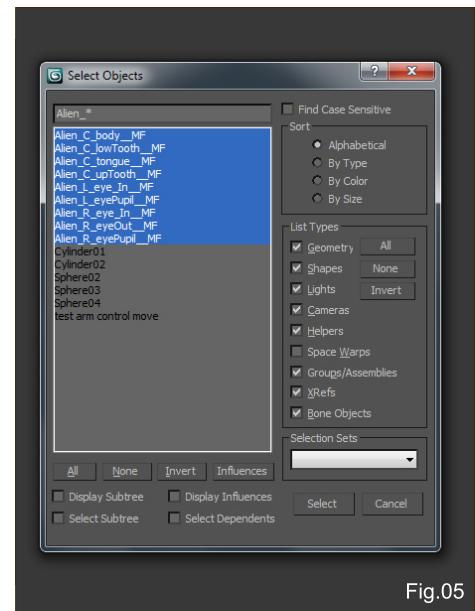


Fig.05

P proxy object we create for quick rigs

W object that will apply to another object as world spaces modifier (such as FDD, bend, etc)

Second letter - kind of object:

A objects to animate

H hidden objects we don't want to see on the viewport

F objects we don't want to select and will be frozen

For example:

Alien_L_eye_MF Alien character, left side, eye part and object mesh and kind freezable.

Alien_C_pelvis_BH Alien character, centre, pelvis part, object bone and kind hidden.

Please note the two underscores “__” before the Type of object and Kind of object.

This symbol __ will help us to separate the properties from the rest of the name.

For instance:

By using “*_MF” in the selection floater, it will select quickly all the meshes and freezable objects in the scene.

By using “*_SA” the selections will be all the shapes and animation object in the scene.

Tip: Having “_SK_” in all the objects that will be part of the skin is a quick way to select them when applying skin modifier.

Tip: Max allows you to have names with spaces but I recommend using names without spaces. One easy reason is that if you double click on an object's name it will select the full name, but it won't if the name has got spaces.

Compare these two names: “test_arm_control_move” and “test arm control move”

If you double click on the first one, you will select the whole name. But if you click on the second name, you will only choose a part of it and you will have to select the full name by selecting manually. This sounds trivial but when you copy and paste a lot of names, it saves a lot of time. **Fig.06**

Also, other 3D applications don't use spaces. If you want to export objects back and forward between two applications, you will have issues.

Tip: Max allows two objects to share the same name. This can cause trouble when loading and saving animations or when selecting objects.

Checking you don't have duplicate names is a must for a good rig.



Fig.07

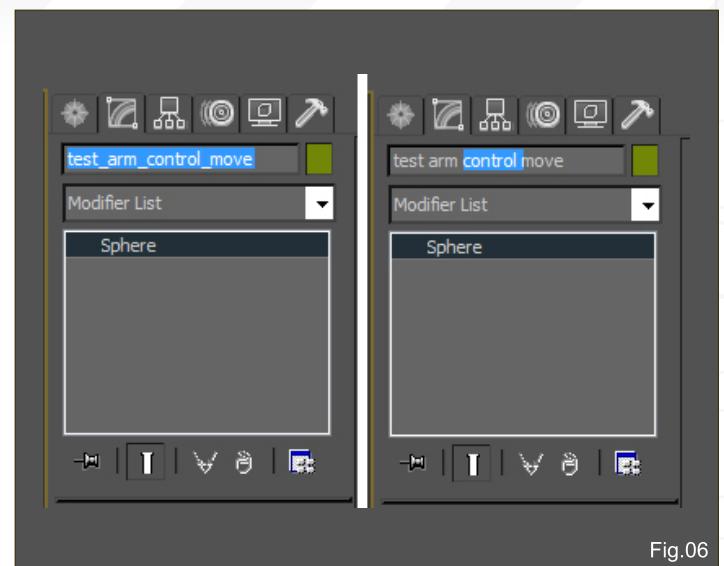


Fig.06

NAMING LAYERS

Naming layers properly will make a scene easier to manipulate. The best way to manage a lot of objects is having them in layers. Normal tasks as hide, freeze and select are much quicker if the scene is organized in layers. I recommend starting all the layers for a character with the name of the character. This will make the layers to stay together as we get more layers for other objects. Normally you will only work with the rig in your Max scene, but as soon as the animators put it in a scene for a shot they will have more layers in their scene for other characters, background...

Fig.07

Apart from naming the layers with the name of the character, it is also good to have a second name to describe what is inside the layer. Use an underscore “_” for the space between the main name and the description of the layer.

Here is the rule to name layers:

_mesh: for all the meshes of the characters and object we want to see on the render.

_hidden: for all the objects we need to get the rig working but we don't want people to manipulate or use.

_control: for all the objects the animators will use to create their animation. Basically all the objects the animators will add keys to.

_proxy: a low res version of the characters quicker than the layers mesh, normally a sliced version of the character linked to be bones. Animators will have a quick rig for blocking their animation.

For example:

Alien_Mesh

Alien_Controls

Alien_Hidden

Alien_Proxy

We must be sure that every object we create in Max is in one of these layers and none of the objects is in the layer 0.

CHECKLIST

Rigging is a technical process where you have to take a lot of things into account. It is very difficult to remember to check everything, so using a checklist is the best way. A checklist is usually a word document or excel file where you include all the things you need to check once you finish your rig. You will find a few checklists in the next chapters.

SIMILAR TYPE OF OBJECTS FOR THE CONTROL OBJECTS OF A RIG

It is a quite extended practice to use the same type of object for the controls, the objects the

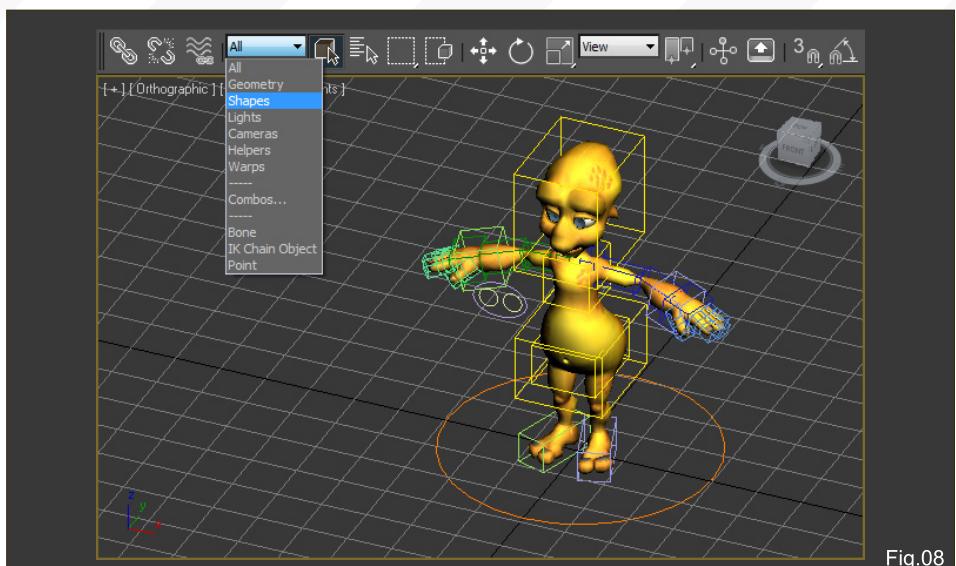


Fig.08

animator will use to move the rig. The reason for this common practice is that Max has a selection filter that allows you to select the object of a certain type making the animators' life easier and avoids selecting objects by mistake.

The most frequently used types of objects for controllers are splines, as we can make our custom shapes for each control. In this tutorial we will always use splines as our control objects for the rigs. **Fig.08**

VERSIONS OF RIGS

A rig usually has several versions. You will need to add changes to the rig that the animator requested or update the rig with improvements. To update the rig we use the Max tool for saving and loading animation.

you where working on it and hadn't finished the rig yet.

For example:

Alien_rig_V1 for the first version
Alien_rig_V2 for the second one, etc.

ANIMATION RIG AND DEFORMATION RIG

There are two main types of rigs - animation and deformation. Animation rig is the rig we riggers create and animators use to animate. Deformation rig is the rig that allows the mesh of the character to deform and helps to create the deformation in a nice way. We use the deformation rig combined with the skin modifier to deform the character in Max. Trying to do the animation rig and the deformation rig at the same time is a bad approach. Always start with the animation rig. We will not move to the deformation rig until we are sure that we have achieved what we need on the animation rig. The deformation rig will always be working on top of the animation rig.

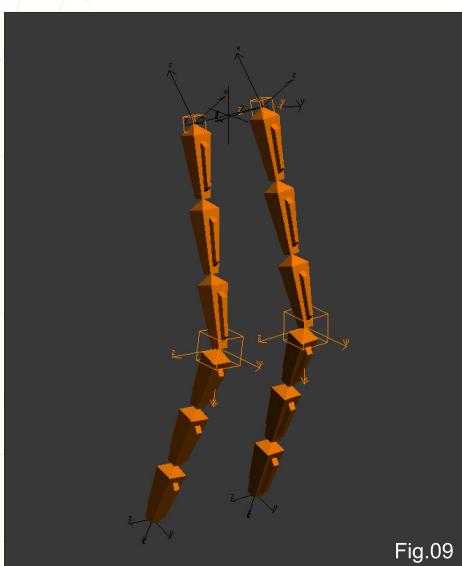


Fig.09

Tip: It is a good practice to change the colour of the main control each time we do a new version. This way it will be easier to check that every scene has the latest version of the rig.

Tip: Don't allow anyone to merge or use the files you use to create the rig. It is good to have a separate folder with the final version of the rigs. Always include the version in the name of the file.

If you don't follow this system, you could find that an animator merged the rig from a file when

In the following chapters, firstly we will create the animation rig for each body part and then we will continue with the deformation rig. **Fig.09** and **Fig.10**.

Tip: In busy projects, you can start giving the animator an animation rig with the proxy

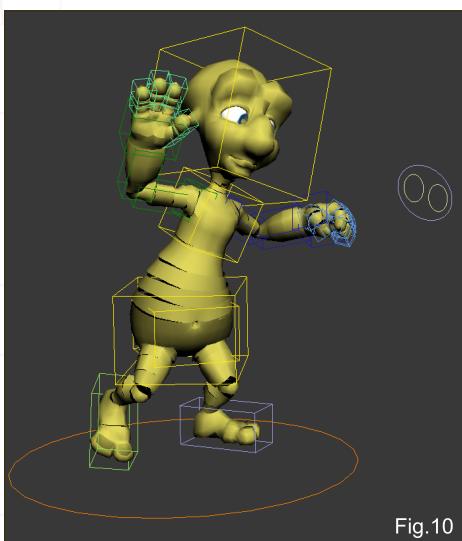


Fig.10

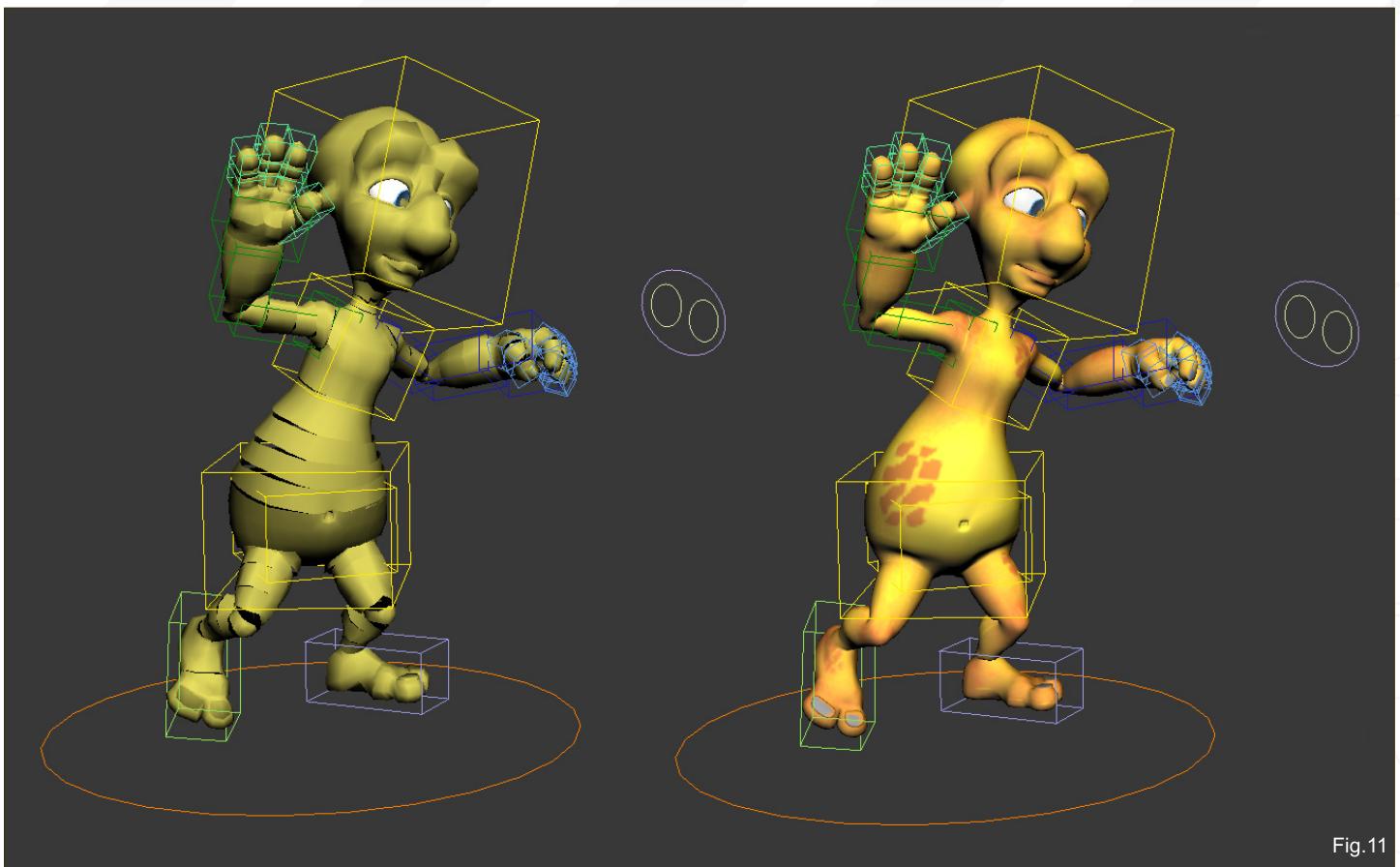


Fig.11

geometry. This rig will be quick and will allow the animator to start blocking their shot. The proxy mesh will give us a rough idea of how the final mesh would look. Later on, you can load the animation to a rig with the deformation rig, so the animator will be able to see if the character with the mesh is deforming properly. By doing

this, animators can start working earlier in a shot and take pressure off of you. **Fig.11**

RIG PARTS

The main body part or areas we are going to divide the rig into are: *spine, neck and head, eyes, legs, arms and hands*.

We will develop the animation rig first and later the deformation rig for each area. In the next tutorials when we develop each rig area and explain it properly in detail, we will speak first about the placement of the bones and after about the angles of rotation for each bone and how many controls we will need to animate each area nicely, and last about the deformation rig and how to get nice deformations. **Fig.12** and **Fig.13**

Tip: Good practice is to take screenshots from your model and draw over them. Try to figure out the ideal location of the bones and where to place the controls. Don't worry about deciding it right now; we will see how many controls are

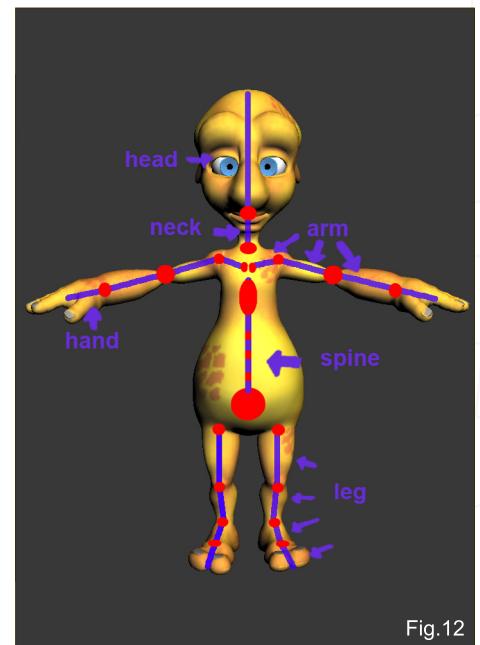


Fig.12

needed and where to place the joints in the next chapters.

FK IK

You have seen the FK and IK words in previous images. FK and IK are two ways of controlling a chain of bones.

FK is the shortening of forward kinematics; meaning that we rotate each bone of the chain to achieve the desired shape.

IK is the abbreviation of inverse kinematic; instead of having to rotate each bone, you have a helper at the end of the chain and moving it will make the whole chain of bones to rotate and follow that point.

FK and IK are the base for rigging, and you will see these two words a lot of times in the coming tutorials.

Each one has its strong and weak points and is better for certain type of animation. We will combine both and use whatever suits best for each case. **Fig.14** and **Fig.15**

For example:

A man waving his arm is the perfect use of FK. A walk is the perfect example for IK. One foot must stay on the floor as we move the character's hips. With FK this would be quite difficult to keep the foot on the floor while we animate the hips, we will have to rotate each bone to make the foot stay in the floor, and this will happen every time we move the hips. With IK this is done automatically.

But the legs of a character hanging from a helicopter would be much easier to animate in FK than having to animate in IK as it helps when following the movement of the helicopter.

PROTOTYPE AND CLEAN RIGS. TEST YOUR RIG.

PROTOTYPE AND CLEAN RIG

We test several solutions while building a rig. The result of all that testing is a number of unnecessary objects that were created with a certain purpose but now they aren't needed any more.

Once you have finished or you are happy with your rig, creating it from scratch again will help you to understand your rig better and to avoid unnecessary objects.

Often you want to test a new idea for a new part of the rig; it is good practice to do it in a clean file and once this is fully tested, redo it in the main rig file. **Fig.16**

TEST YOUR RIG

Before we hand over our rig to an animator it is always important to test it. Put the rig in situations you wouldn't expect - move, rotate

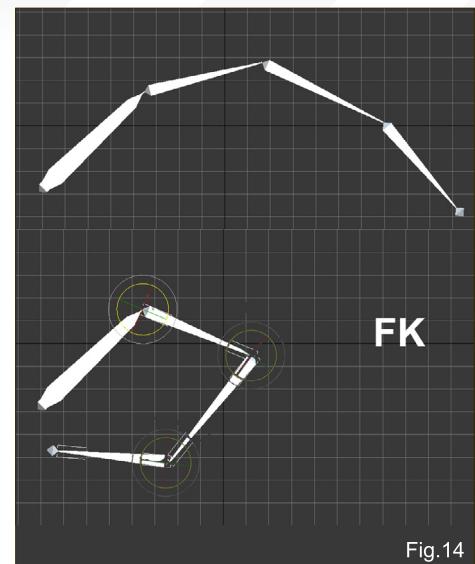


Fig.14

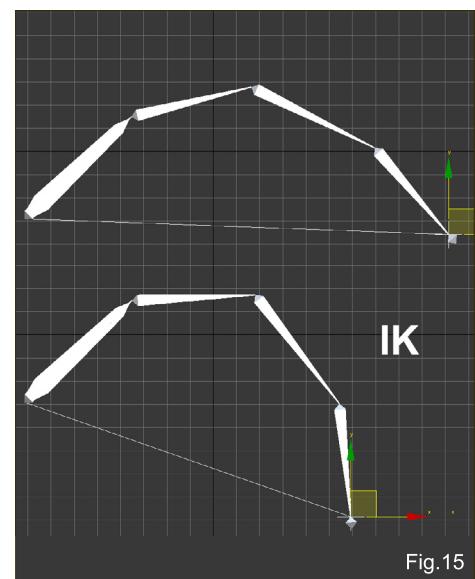


Fig.15

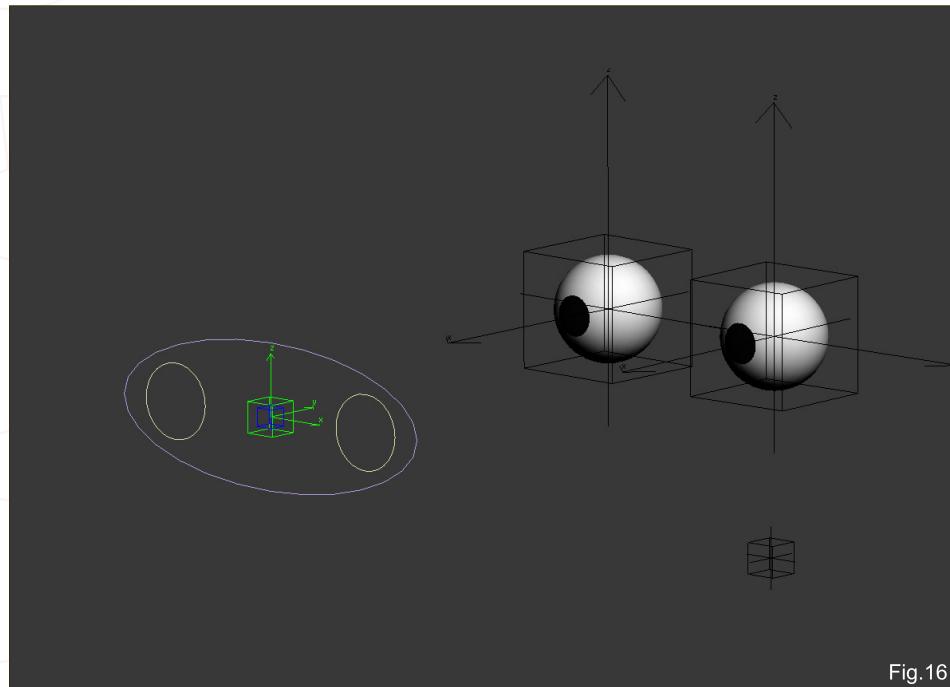


Fig.16

and scale it; if the rig doesn't break it is a good rig.

Quite often, when we check the rig, we realize that we have forgotten to link a part of the rig or something doesn't deform properly on the mesh.

It is quite difficult to remember to check everything, so testing a rig is our only way of being sure it is ready for production.

LUIS SAN JUAN PALLARES

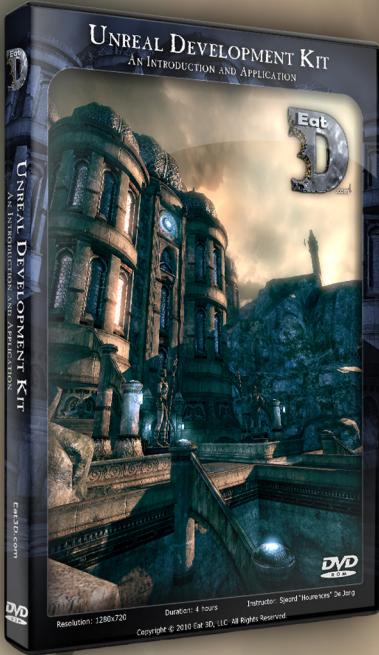
For more from this artist visit

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Facial Rigging

CHAPTER 6 | SEPTEMBER ISSUE 061

Scripting



INTRODUCTION TO RIGGING

The aim of these tutorials is to show and explain how you might tackle rigging your 3D character for animation. These tutorials will give help and advice to novices and experts who are looking to build on their rigging skills or approach rigging for the first time.

The series gives a detailed step by step guide as to how to approach rigging but also shows us how to tackle common problems and issues that regularly occur even in a professional environment. The artists will be reflecting on working in the industry as well as talking us through their individual approaches to creating the best rigs possible.



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INTRODUCTION TO RIGGING: 1 - PLANNING YOUR RIG

Software Used: Maya

CHAPTER OVERVIEW

Welcome to the **Introduction to Rigging** tutorial series for Maya. Throughout these lessons for beginners, you will discover some basic technical concepts that will get you started in the fun and crazy world of rigging! And at the end, we will rig a complete biped character and leave with a short introduction on scripting, to automate simple tasks.

In this first chapter we almost won't be using the software itself – first things first! Anyone can follow a tutorial and get things working, but you can't rely on tutorials forever, right? You've got to understand what you are doing! So we're going to explain a little about how character riggers think, and how to optimize your work from the very start of the process in just about any kind of job.

Are you ready? – Let's do this!

PLANNING

Before taking any action, here is something you should always remember: **Do not try to create**

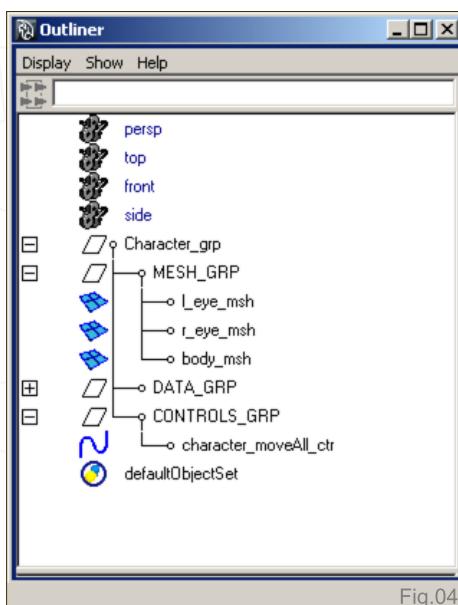


Fig.04

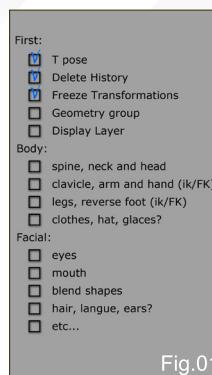


Fig.01

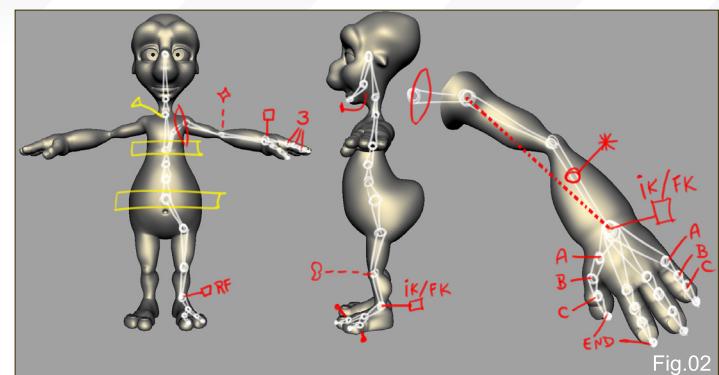


Fig.02

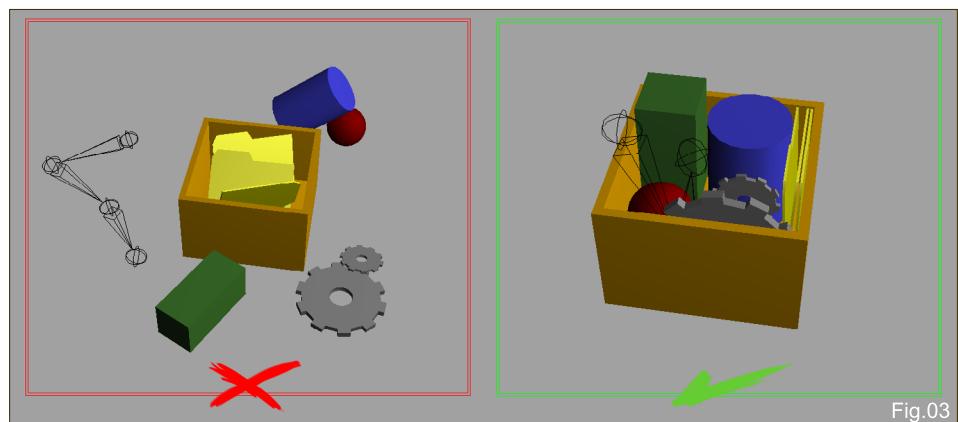


Fig.03

everything that's in your mind, like some crazy, hungry monkey, before planning your rig!

Like with almost everything in life, if you don't plan before taking action you will most likely have a hard time trying to get things working! The process of building a character rig can be really complex, so it's a good idea to write a task list to avoid skipping important steps (Fig.01).

Pro Tip: First, let's play a little with our character and try to imagine how we can get good deformations. Good practice is to take screenshots from your model and draw over them. Try to figure out the ideal location of the skeleton, controls and pivots based in your character's proportions. Don't worry about this now; we will help you throughout this chapter (Fig.02).

ORGANIZATION

In the rigging world, being organized is essential! Organization helps you to create easy-to-understand and up-to-date setups.

Please, try to rename all objects, geometries, curve controls, nodes, etc. To sum up: everything you create and may have to use later.

Good practice in Maya is to use Groups (Any Mode > Edit > Group). Your rig must be as simple as possible. It doesn't matter whether you're working on a simple cartoon character or on a badass realistic creature: keep thinking in terms of solutions! They will come to you more easily when your rig and workflow are organized (Fig.03).

NAMING

There are lots of object types in the 3D world, so it's easy to mix them up or delete what you shouldn't when you're on a tight schedule or working on really large scenes. **Be careful to always name all of your objects, whilst keeping the names as clean and understandable as possible.**

A simple pipeline only uses prefixes and suffixes for all nodes (objects in your Maya scene).



The main idea here is team integration. When another person opens up your scene, they should be able to edit it easily if everything is correctly organized. Remember: please work with care in order to avoid unnecessary work for others and for yourself!

A simple yet efficient approach is to use three letters from the name of the character as a prefix, and also three letters from the node type as a suffix. And a good idea is to use underscores to make the names more readable. If applicable, indicate the node side using just one letter ("L" for left and "R" for right). Try to use underscores only when prefixing and suffixing, make the object name cleaner by separating words using capital letters between them ("I_greenColoredEyeball_jnt", for example) (Fig.04).

REFERENCES

Whenever rigging creatures, be they humanoid, alien, animal, robotic, or whatever, always look for anatomy references in books and on the internet. **Having knowledge about anatomy is a very important basis for creating good skeletons and muscle deformations.**

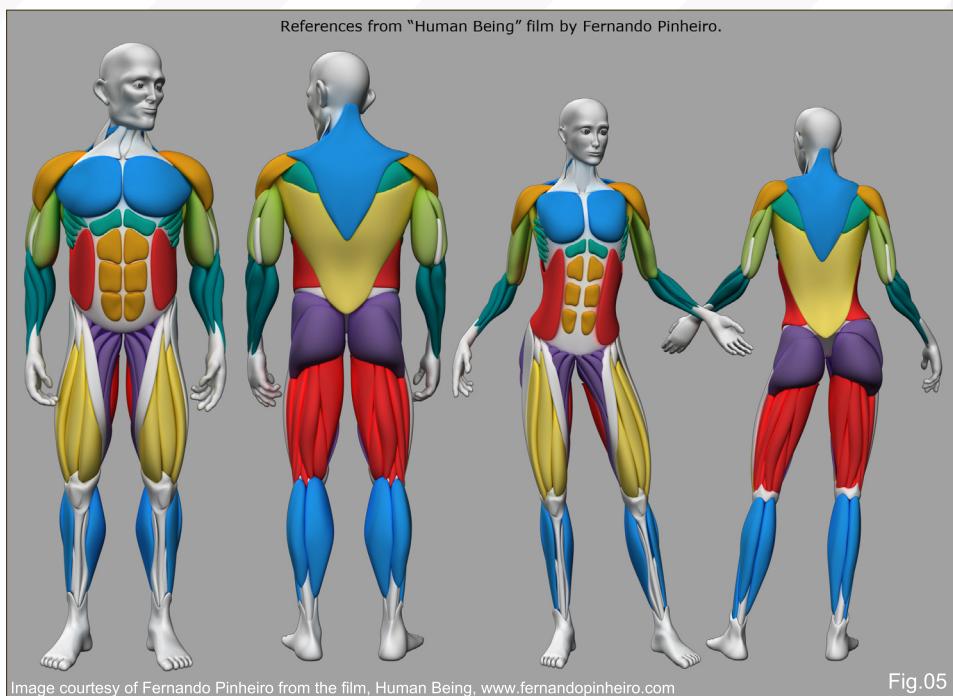


Fig.05

Before you start your rig, take some time to look at the real world, as well as movie and image references. By doing this, you will most certainly have a clearer idea of what objectives to meet and how to achieve them (Fig.05).

BASIC ANATOMY

Let's now discuss a little about some of the basic aspects of anatomy so we can position

our joints in the best way we possibly can – this always ensures good rigging results! We will quickly cover some deformation facts and limits, establishing those imaginary "mass blocks" to better understand how the deformation works in each area. Try to compare it to your own body to better understand how the rig should work.

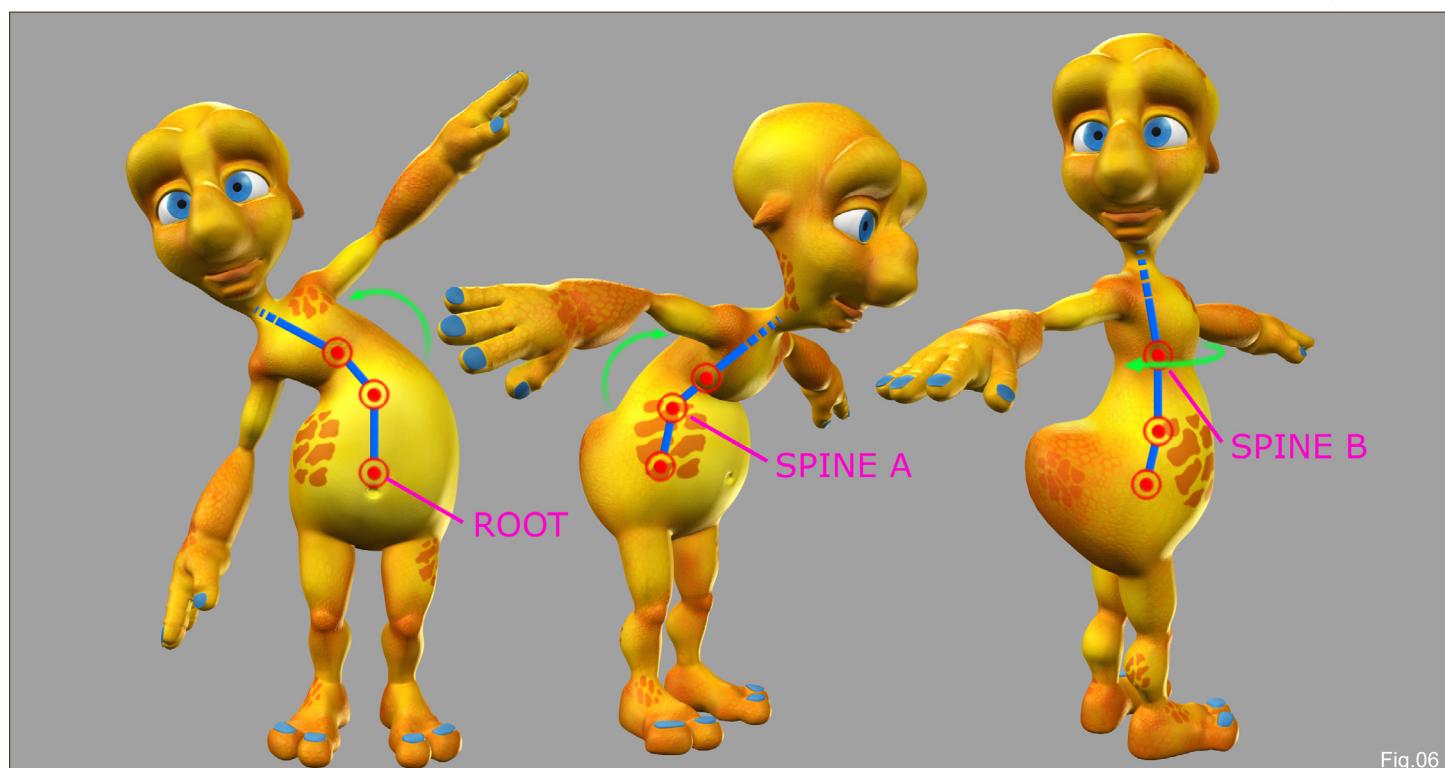


Fig.06

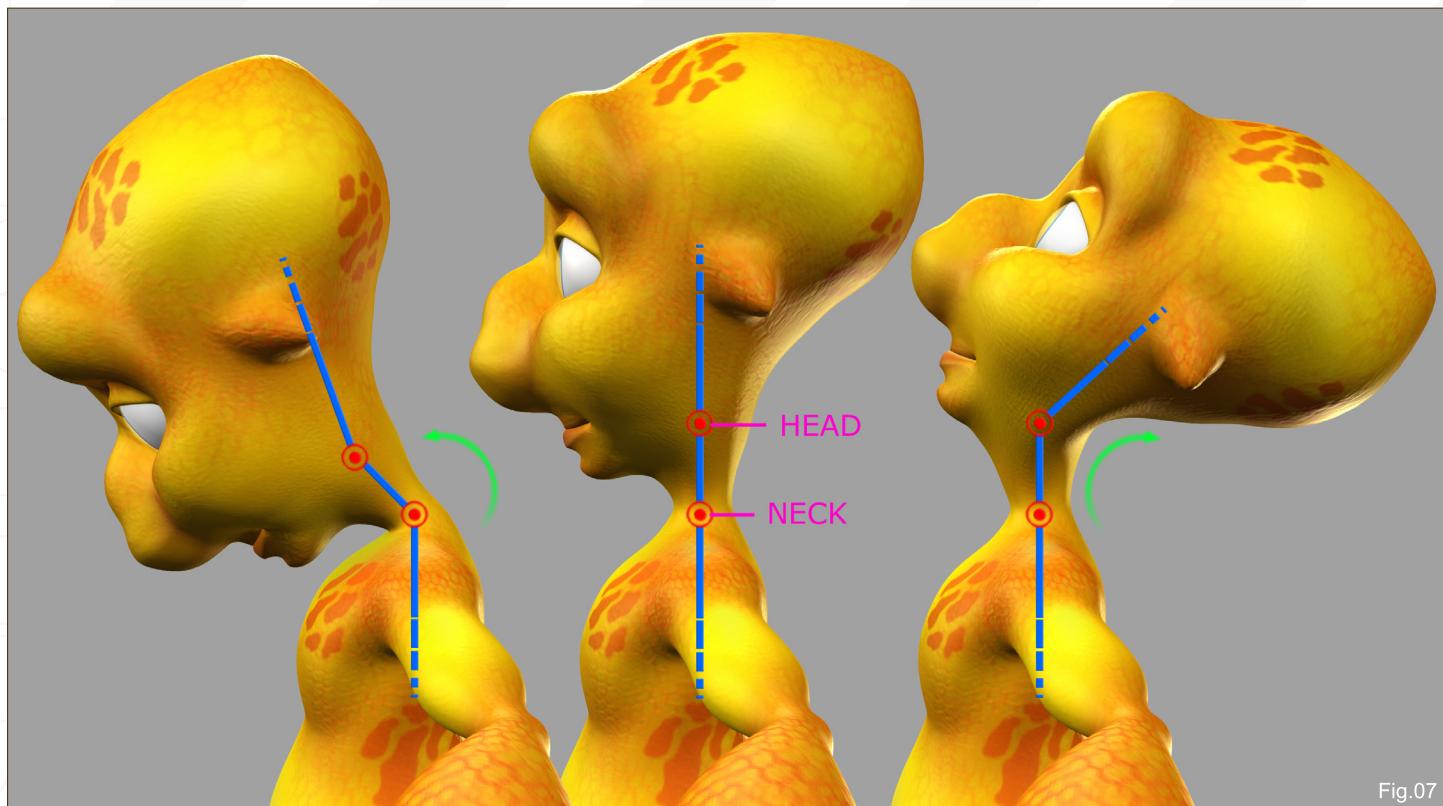


Fig.07

SPINE

The center of gravity (or center of mass) of a character is located in the spine, near the navel (we'd usually consider the waist joint as the root joint of all the hierarchy). When building the chest, be aware that it's the body part that deforms the least, while the abdomen is the most flexible region of the spine (Fig.06).

HEAD & NECK

We can divide the head and the neck into two main rotation points: one for the neck located in the base of the cervical vertebrae region, and the other for the head located at the base of the skull (Fig.07).

ARMS & CLAVICLES

The clavicle is very important in order to get good arm movements, because the shoulder doesn't rotate more than on a horizontal line. With the clavicle, this limit can be surpassed, but remember that the clavicle bone doesn't rotate on its own axis (the one pointing to the shoulder). There is no limit on the shoulder's rotation, but the elbow can only rotate on one axis (using the biceps and triceps muscles).

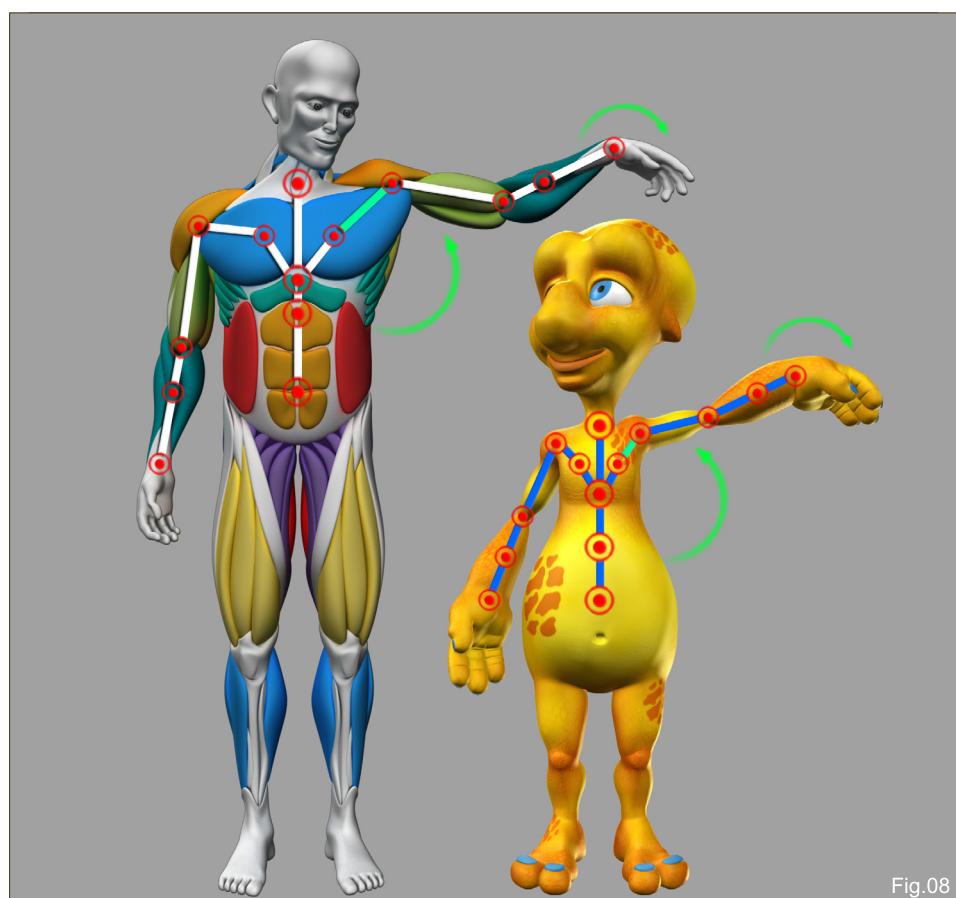


Fig.08

The wrist bone also cannot rotate on its axis point. The relationship between the elbow and the wrist is very interesting because of the

radius and ulna bones; they cross when the forearm rotates so that the wrist region rotates, keeping the elbow fixed (Fig.08).



HANDS

Basically, we can consider that there are three phalanx bones for each of the five fingers in the human hand. None of these bones rotate on their axis point. The starting base of a phalanx can rotate on two axes, but the middle and last phalanges cannot (Fig.09).

LEGS

The leg joint can rotate in all directions, and it's possible to rotate the ankle with it together, as if in a group. The knee just rotates in one direction, whilst the toes on the feet are similar to the fingers on the hand (with three phalanx bones for each), except that the toes only have two phalanges each (Fig.10).

Pro Tip: Remember to base your rigging on good anatomy whenever you can, but don't let it imprison your creativity! Sometimes we need to create mechanics that are different to realistic and natural anatomy in order to achieve the desired effects and deformations. Feel free to diversify using your creativity to get the best solutions for your needs.

IN CLOSING...

That's it for this lesson! Be sure to draw and study a lot of anatomy and deformations! In the next chapter we will dive into Maya – our 3D software of choice – to put our knowledge into practice! That's right, in the next part we will test our planning on the real thing! A brief overview will show you how the software works and explain some of its main tools that are used for the rigging process, and we will also discover some tips and tricks on general rigging so you can speed up your workflow.

RICHARD KAZUO & DANILO PINHEIRO

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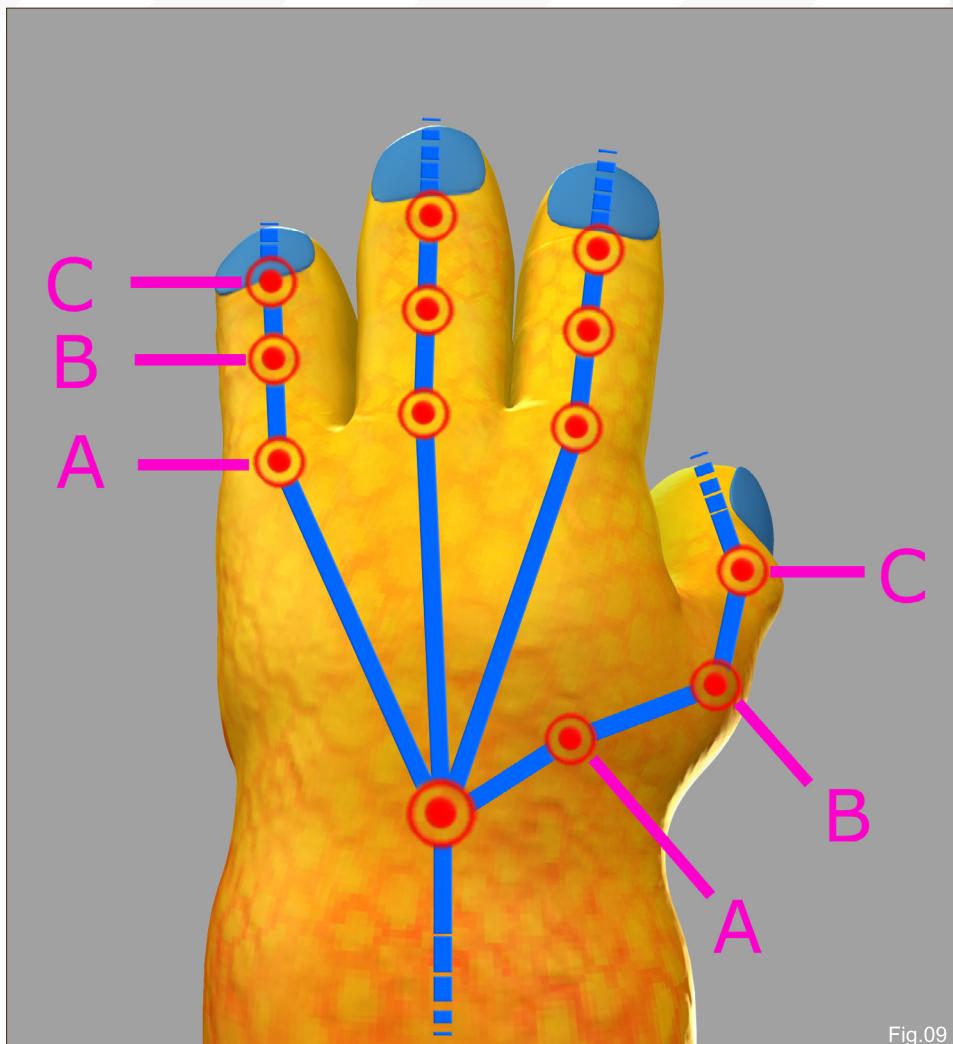


Fig.09

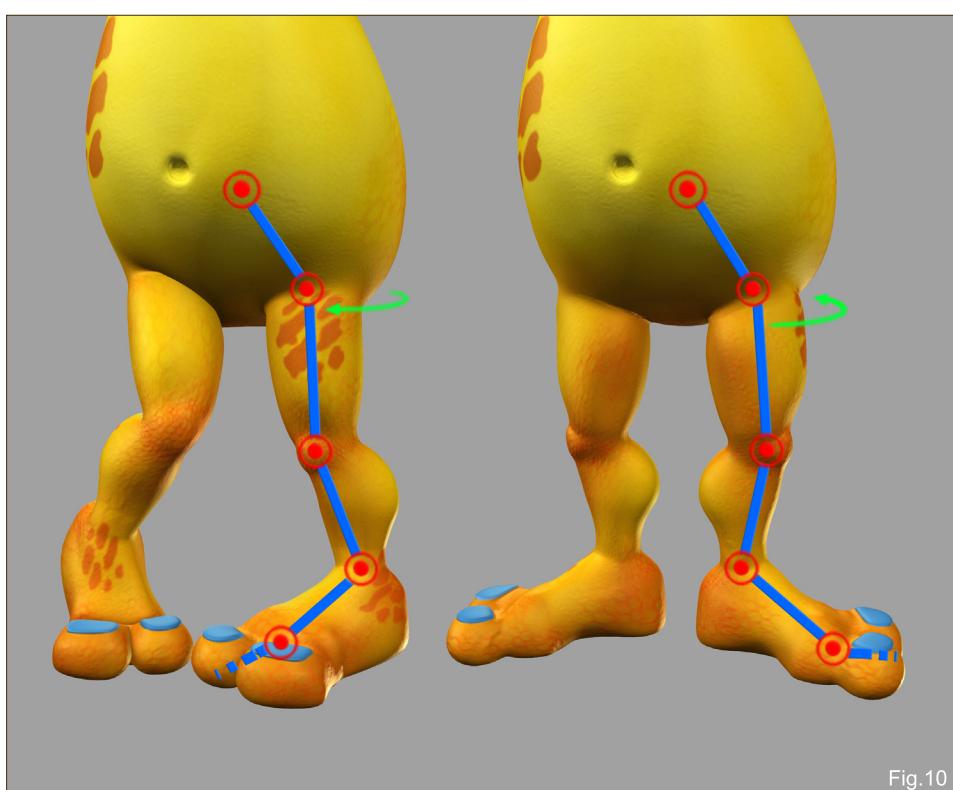


Fig.10



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ABOUT THE
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STANDARD VRAY
MATERIALS WITH
DIFFUSE, REFLECTION
AND BUMP MAPS."

MAKING OF By ÖZCAN ŞENER

CHINA TOWN

Özcan Şener tells us how he was inspired by some great Sci-fi movies to create this excellent scene, and talks us through a host of shortcuts that he used along the way.

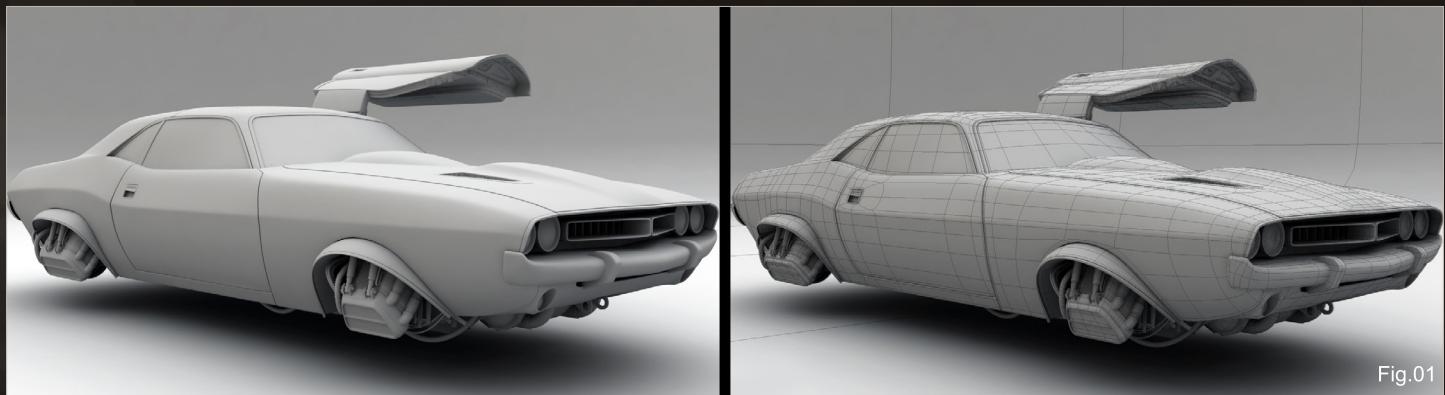


Fig.01

CHINA TOWN

Software Used: 3DS Max, Vray & Photoshop

INTRODUCTION

I have always been interested in science-fiction and fantasy themes, especially the dark ones like Blade Runner, Immortal and the cinematic trailers from Blizzard to count a few. Whenever I find spare time I search for new concept images to see more unique creations from different artists, this way I can see more new designs and improve my imagination.

REFERENCE

For this image I was inspired from a few sources. Movies: 5th Element and Immortal , Animes and mangas : Ghost In The Shell and Tatsuyuki Tanaka's works.

Some animes and mangas have unique and brilliant designs that sometimes I wonder how they came up with those ideas.

I didn't make a concept at first and that made me suffer later, It gets hard to create a new scene in 3d because it's a time consuming work



Fig.02

and you get frustrated after a while trying to make the objects fit in the scene. I model and texture everything in my scenes and it's really a bad thing when the object doesn't look right in the whole picture.

Also I looked for some muscle cars and saw that 1971 Ford Challenger was a good choice.

MODELING

First of all I use lots of shortcuts for modeling, it's essential for an efficient workflow. Some of the modeling commands I use with shortcuts are: convert to editable poly, ring, loop, connect, chamfer, extrude, inset, target weld and swift loop with its own hotkeys.

After I thought what the scene should look like, I started modeling the car which should be docked near a platform. I started from a polygon and extruded the edges by holding shift and dragging. The main body is made by using car modeling techniques which can be found in most of the car tutorials nowadays. The model and the wire can be seen from different angles in Fig.01 and Fig.02.

For the environment I used mostly primitive objects for starting, like box, cylinder, tube and renderable lines for cables. Also using the auto grid function is a big help, this meant I was able to build objects on other objects easily. A few shots can be seen in Fig.03.



Fig.03

For the damaged thin roofs first I made a plane with lots of segments and then I selected the edges with a dot ring command and moved the ones that are selected upwards, this way I could achieve the wavy look on the roofs. After this I applied meshsmooth modifier, then selected the faces that should be gone with paint selection tool and deleted them. For thickness I applied the shell modifier.

For the Chinese letters I modeled the outlines with lines and applied extrude modifier. And for the wires lines are the best way to go again. Points can be added whenever you need and bezier handles give you the control over curvature.

Pipes are made of simple and bended cylinders. Air conditioners are made from simple boxes with some extrusions around them. As you can see I start from primitives which resemble the finished intended object.

The scene can be seen in **Fig.04**. There is not anything else in the scene, only what the camera can see, this is enough for still shots but it's not good for camera movements.

TEXTURING

Another hotkey list for Photoshop tools: Brush, marquee tool, move, lasso tool, magic wand, crop, eye dropper, clone, erase, burn/dodge. Those are just for tools, there are still lots of other commands that should be used with hotkeys for efficiency.

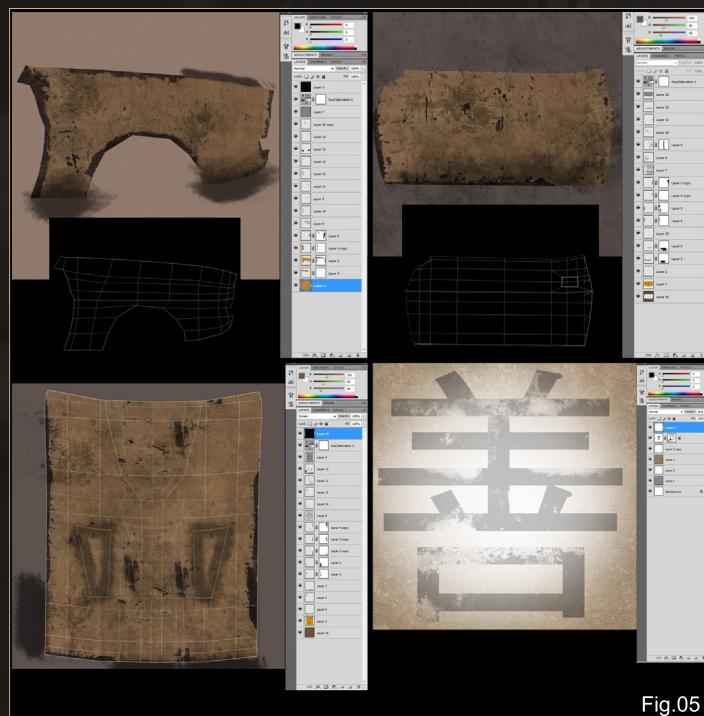


Fig.05

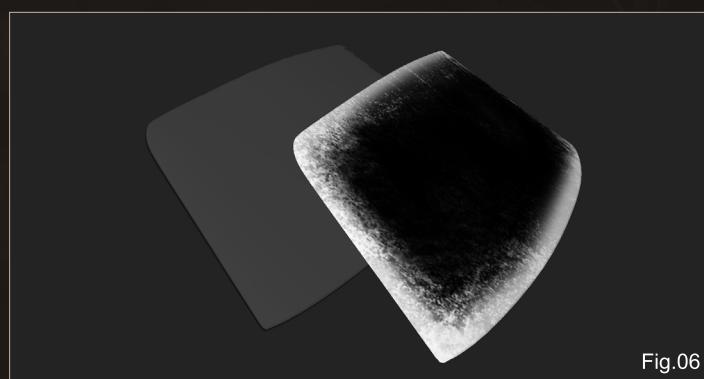


Fig.06



Fig.04

For this part I used mostly procedural texturing as there are lots of objects around. I applied the uvw map modifier and used the mapping type appropriate for the object.

The car and some objects had to have proper uv coordinates for the rusted edges. Some of the textures for the car and a sign can be seen in **Fig.05**.

Unwrapping process is boring most of the times (maybe every time) I use Headus UV layout which you can export and import your meshes in 3DS Max with a script. Also Textools is a nice script fully integrated in 3DS Max unwrap modifier.

I use Photoshop for most of the texturing process. Also I use Body Paint 3D time to time, it's a nice application for 3D painting and it has most of the Photoshop options available like layers, blending modes and filters. You can paint more than one material channel simultaneously too. The nice thing about painting 3D is you can see what the texture looks like on the object in real-time.

To summarize the texturing process, first I make a base layer which is a whole rusted image. Then I add another painted layer with some scratches on it. And with a custom brush I start painting a mask over the paint layer on the edges of the UV coordinates. After that I add other layers for dirt. You can use other images with masks and blending modes or paint with a brush.

The key when working with Photoshop is to work with layers non destructively. I just add masks to textures and paint in them if I want something to be gone. I can come back and erase the mask and get back the detail whenever I want. If you delete something it's gone for good. Also I use smart objects and filters time to time. You can't change the amount of the filter for normal layers but if you use smart filters, filters become optional for the layer.

One more thing to tell here, the dirt on the glass is not used in the glass material itself. I copied the polygons on the outer glass and moved them a little (Fig.06). And then I used a full dirt map with an opacity map which reveals the dirt. Also you can change this dirt layer's receive shadows and cast shadows properties from the object properties panel.

MATERIALS

There isn't anything fancy about the materials. I use standard Vray materials with diffuse, reflection and bump maps. From left to right, materials for the dirt layer, front lights for the car and the car body material can be seen in Fig.07.

LIGHTING

I wanted a dark cloudy day and get the general lighting using skylight with an HDR in the Vray options. The other lighting elements were achieved with omnis with colors (Fig.08)

RENDERING

Scene it was rendered with Vray, I don't like waiting for the render result so I didn't push the settings higher for better results (Fig.09). A nice trick for test renders is saving the irradiance map and using it later. I didn't use gamma 2.2 settings and played with levels later in Photoshop. Also Vray frame buffer can be used to see the results with color correction inside

3DS Max.

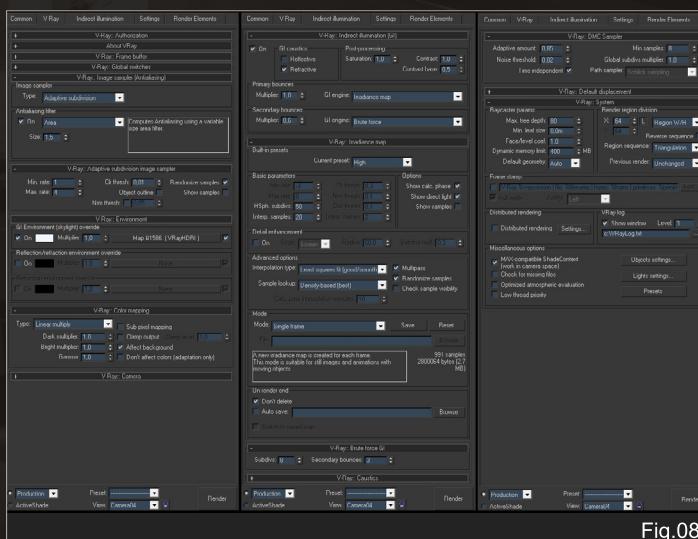


Fig.08

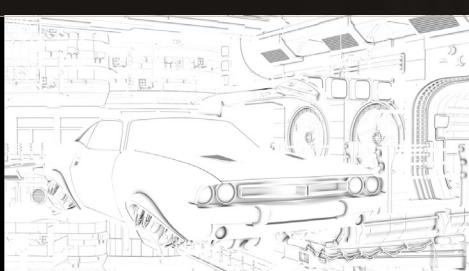


Fig.09

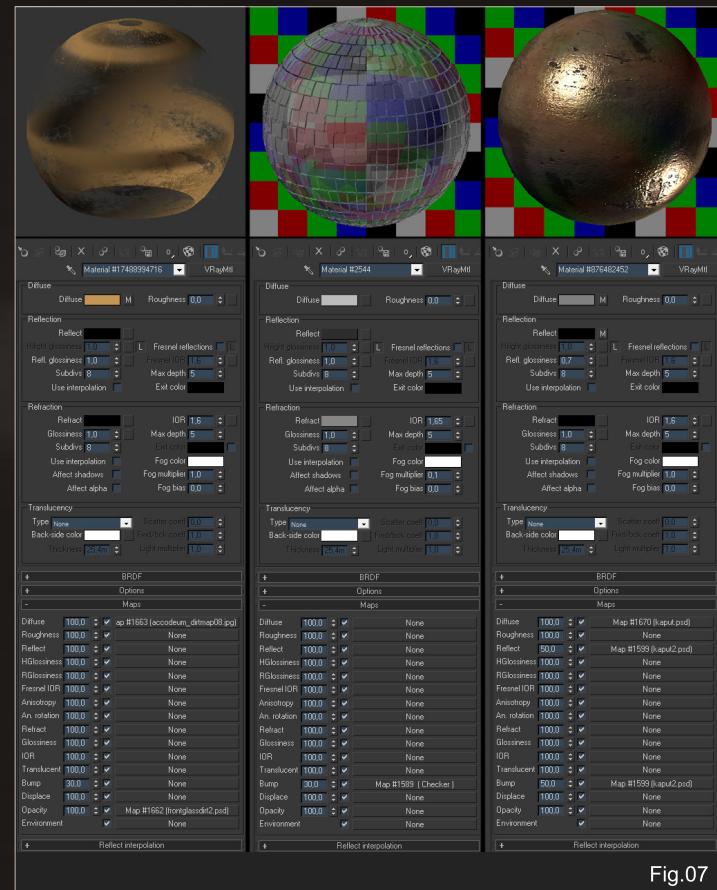


Fig.07

COMPOSITING

In 3DS Max I rendered a raw image, an ambient occlusion pass and a depth pass which can be rendered as a render element Fig.10.

Some of the compositing layers can be seen in Fig.10. I started the compositing by correcting the histogram first, with a level adjustment. Curves can be used here if the levels can't get the look you want. I used a Hue/Saturation adjustment and desaturated the image a bit. After that I added the AO pass with a multiply blend mode and played with its opacity. At this point I got a copy of all layers by holding down alt key and merging visible. With this you can get a merged copy of all layers and you still have your other layers below. I converted this layer for smart filters, applied a mask with the depth pass and applied a gaussian blur filter. With this you can change the amount of blur. This new layer became the depth of field pass. As well as playing with the gaussian blur I was able to change the





Fig.10

opacity of the layer to adjust the blur amount. I got another copy with merging visible with holding alt and started applying filters. Tiffen DFX is a good plugin for Photoshop as it has lots of presets, like film grain, warming and cooling effects and glow effects. I made a copy of the layers each time I was going to apply filters and blend those new layers with some opacity changes.

After the standard layer work was done, it was time to paint. In a new layer I painted the glow of the lights and blended them with adjusting the opacity of the layers. I used some smoke brushes I found in the net for the smoke.

Finally I started the distortion effect by copying the layers again with holding alt and merging visible layers. I applied a distort > glass filter to this layer and painted a mask on where the heat waves were going to be.

I used another Hue/Saturation filter at the end because the filters changed the colors a lot in the process.

I hope this making of was useful for you and thank you for reading.

CHINA TOWN

For more from this artist please contact them:

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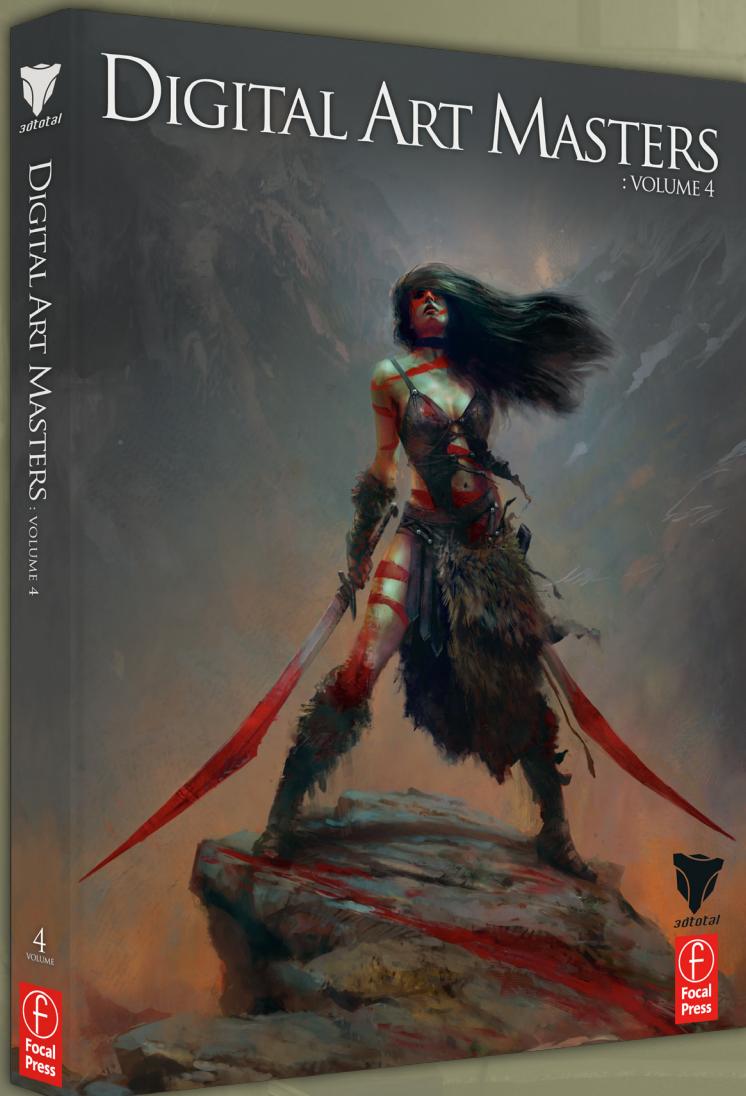
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This month we feature:

"PAWNSHOP"

BY TOMÁŠ KRÁL



The following shots of the "Pawnshop" book pages are featured here in full-resolution and can be read by zooming in...



PAWNSHOP

BY TOMÁŠ KRÁL

SOFTWARE USED: 3d Studio Max, finalRender and Photoshop

INTRODUCTION



Some time ago we – me and some friends – came up with an idea to make a game ... we later named the project, "Ashfall". Purely for our own satisfaction, we started putting together various ideas, thoughts and, of course, numerous graphical concepts. Ashfall was always meant to be a 2.5D adventure game with a very strong story, where a fully 3D character moves freely on a pre-rendered back plane. My task on this project was to work on these pre-rendered environments. Here, I'll talk you through my process of creating one of these environments.

CONCEPT & REFERENCES

At the very beginning of any project I usually pick up lots of references, either I shoot them myself or search the internet on the likes of Google or Flickr. This part of the project is very important for my work as it helps tremendously later on when texturing, modeling details or creating materials and so on.

In the case of this project, we were overwhelmed with various ideas for what the visual style of our game should look like, so it was essential for us to write everything down on paper for later reference. Our team spent countless hours discussing and sketching so that we all settled on the general look and feel of the world our game was going to be set in (Fig.01).

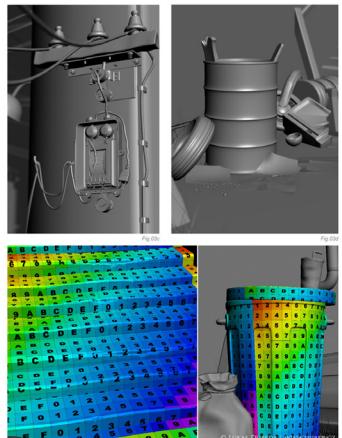
MODELING & COMPOSITION



The modeling in this project wasn't too difficult. I started with very simple primitives, like boxes, planes and spheres. Then the almost endless toying around with Editable Poly tools like extrude, bevel, cut, and plenty of chamfering, started. Since the output of this piece was supposed to be a still image, I didn't have to bother too much with stuff that was going to be outside of the rendered frame, which is why before any detailed modeling began I created a camera and set it up from where I wanted to see my scene. Using very simple geometry I made an approximate composition.

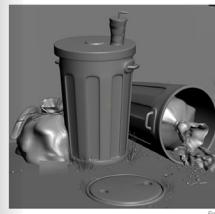
Every object that you create in 3D is geometrically perfect, which is not possible in reality, which is why it's always a good idea to break and distort your models a bit, to make them slightly imperfect. Using tools like cut, extrude or chamfer you can easily add various holes, scratches and beveled edges, and therefore break that 3D perfection (Fig.02a – c). And if your model has enough geometrical resolution, you can also add a few more irregularities to it using the noise modifier.

TEXTURES



The scene is filled with lots of small, seemingly non-essential props. These objects are also made using the same basic Editable Poly tools. Their function is to fill out the scene and thus make the final render a bit more interesting for the viewer. These props also have the advantage of being copied all over the place again and again, once you have them modeled (Fig.03a – d).

MAPPING



The worst and least fun part of a project, if you ask me, is the mapping. There are fantastic programs, such as UVLayout, that can help you a lot, but I've found that UVLayout is better suited to mapping organic or more complex models. This is why I use standard, simple UV mapping techniques much more often. Simple planar, cubic or cylindrical mapping with a tileable texture got the job done this time. For more complex objects, I used the unwrap tools.

To preview the UV distortion on my models, I didn't use the 3d Studio Max standard checker map but instead a special texture map created by Lucas Duber, with numbers and letters on it, which helped me a lot when looking at the mapped mesh and made it much more readable (Fig.04).

SCENES



For texture creation I use Photoshop. I like to think about my scenes as if they are a story. What happened there over the years, what kind of people lived there, what kind of an environment is the scene set in? The city in which our game story has been set is full of dark passages, old half-ruined buildings and all kinds of dirty corridors. I also like to take pictures of textures myself, but in this case the Total Textures DVDs from 3dTotal were a priceless asset in the image creation – especially Volume 5, which contains lots of dirt maps. By combining those dirt maps together in Photoshop I was able to get exactly the type of dirty surface textures I was seeking (Fig.05a – c).

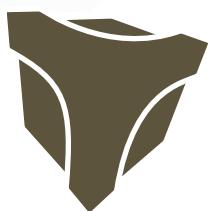


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This series of five tutorials will focus on the topic of outdoor lighting and more specifically the task of setting up different light rigs to reflect a variety of weather scenarios. Each of the chapters will use the same base scene as a starting point and show a step by step guide to finding a lighting and rendering solution to describe a set time of day under different conditions ranging from a damp foggy night to sunset / sunrise.

The tutorials will explain the type of lights used and how to set up their parameters alongside the combined rendering settings in order to achieve an effective result. The manipulation of textures will also be covered in order to turn a daylight scene into night for example, as well as a look at some useful post production techniques in Photoshop in order to enhance a final still.

CHAPTER 1 | JANUARY ISSUE 053

Fog/Mist at Night-Time

CHAPTER 2 | FEBRUARY ISSUE 054

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CHAPTER 4: MIDDAY SUN



CHAPTER 4 - MIDDAY SUN

Software Used: 3ds Max + Mental Ray

INTRODUCTION

During this exterior lighting series I will be covering the techniques I used to create various time and weather conditions using 3DS Max and the Mental Ray renderer. I will be concentrating on describing my lighting methods rather than any modelling or texturing that may need to be done. I have created as much of the image as I can in Max; leaving the Photoshop 'polish' to a bare minimum to achieve the final result.

For midday sun I think of baking hot weather, sunlight bouncing off surfaces creating hot spots on the walls, and windows to show the intense light being cast by the sun. Shadows will also

play an important part in this image, for midday the shadows need to be very sharp and at a steep angle to give the illusion of the sun being almost directly above you. I also imagine the sky to be a bright blue with no cloud cover. This blue sky will just show through at the top of the image adding a nice spot of color. A problem that we will need to overcome will be the intense light from the sun washing out the color of the buildings and removing the detail from the textures and bump maps.

IDENTIFYING LIGHT SOURCES

There are 2 main sources of light in this image. The main one being the sun light and the second being the bounce light reflecting off the walls and filling the dark shadowed areas with light. For the sunlight I will be using the daylight

system to create a realistic looking sun and use a HDR map to help create the secondary light source.

There will be no artificial light in this scene as it is the middle of the day any interior lighting will not be visible.

Here is the Image before any lighting has been applied. (Fig.01)

SETUP DRAFT RENDER

When lighting any image, you can't expect to achieve the final result first time. In anticipation of a lot of 'tweaking', I setup the renderer to a draft setting so it speeds up the render time to a more workable rate. I set the render size to 360*480 and in the indirect illumination tab I set the Final Gather to draft and the bounce light to



Fig.01

0. This will allow me to render out as quickly as possible.

SUN LIGHT

The sun is created using the Daylight system. This is located in the Create tab under systems. When you click on Daylight system you will be asked if you want to change the exposure settings. I clicked yes for this to give us better results in the final render. In the viewport you click and drag a compass, then when you release the mouse button the sun is created and you can position it quite high above the scene to simulate the high midday sun.

Here is an image of the viewport containing the daylight system (Fig.02)

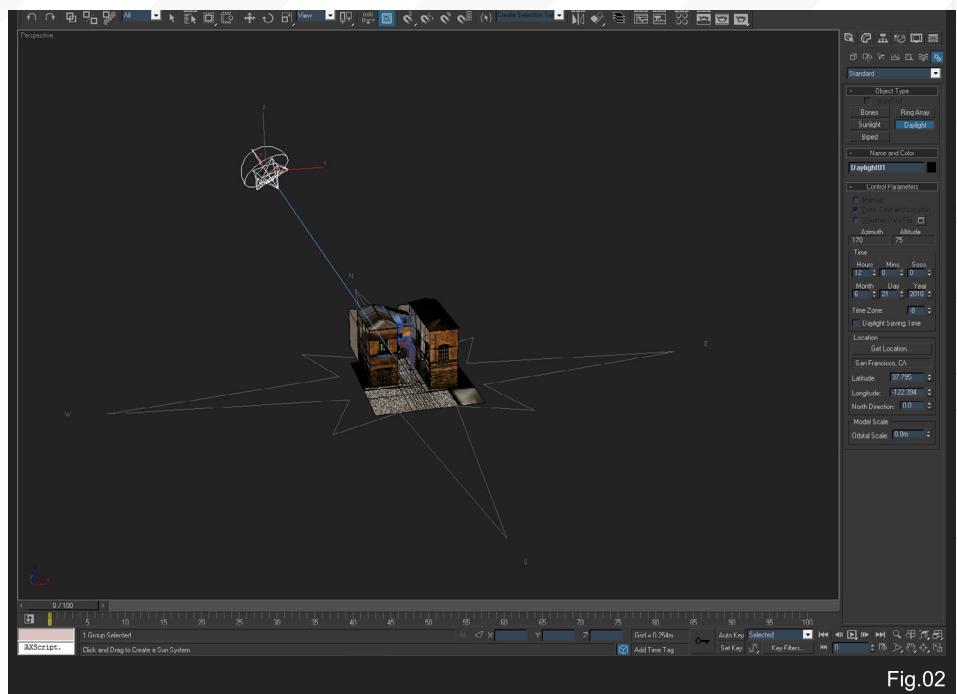


Fig.02

If you hit render now you will get an uninteresting image but we are using the default settings. We need to alter many settings to get

the desired effect, I will start from the top and work my way down the properties of the daylight system.

Here is a render with the default daylight system settings. (Fig.03)



Fig.03

DAYLIGHT PARAMETERS

Sunlight - mr Sun

Skylight - Skylight (This option allows us to use a HDR image for the GI)

Position - Manual (This allows us to move the sun to where we need it)

MR SUN BASIC PARAMETERS

Multiplier - 5.0

Shadows - On

Softness Samples - 24

Inherit from mrSky - Unchecked

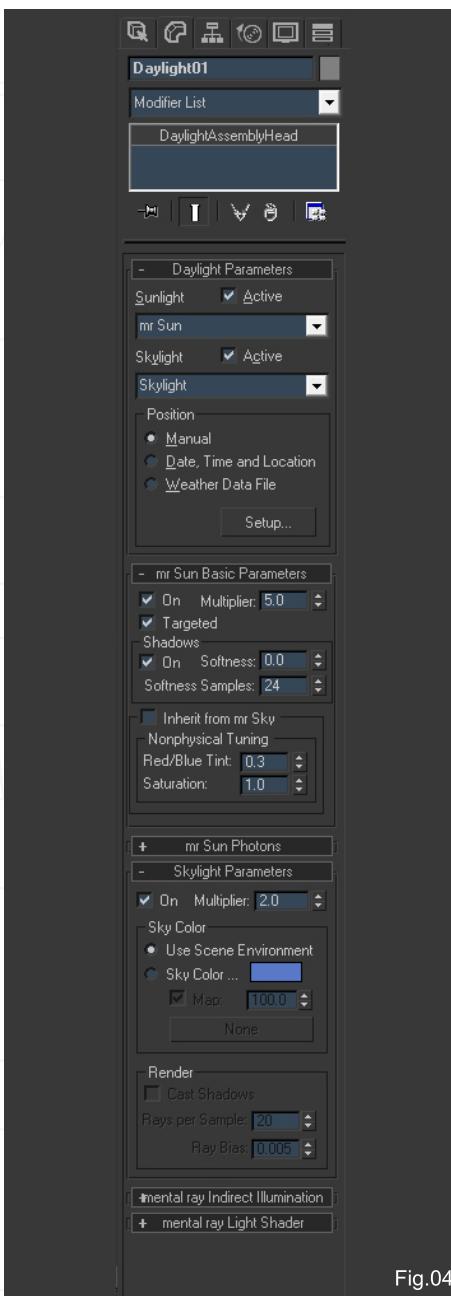


Fig.04

Nonphysical Tuning

Red/Blue Tint - 0.3

Saturation - 1.0

SKYLIGHT PARAMETERS

Multiplier - 2.0

Sky Colour - Check 'Use Scene Environment' (we can now add a HDR map to the background in the 'Environment and Effects window').

Image of settings (Fig.04)

I got to the settings above by tweaking the values and test rendering until I was happy with the shadows, the color of light and the power of the light and bounce light. We also need to change the settings in 'Exposure Control' to get a better render. This can be accessed by going to 'Rendering/Environment' in the menus or by pressing '8'

Here are the settings I used in this window:

COMMON PARAMETERS

Check 'Use Map'

I then added a HDR map in the map slot. I chose a bright sunny day map, they can be found quite easily if you search for them. I did a search for sunny HDR map and downloaded the one I liked the look of. I can't show it because of copyright issues but you should be able to find one easily.

Note; This HDR image will now be rendered in the sky. Don't worry about this, you can use an Alpha channel render element to 'Cut Out' the HDR sky and paste in our own nice blue sky.

EXPOSURE CONTROL

Select from the drop down menu - mr Photographic Exposure Control

MR PHOTOGRAPHIC EXPOSURE CONTROL

Check Photographic Exposure

Image Control

Highlights - 0.25

Midtones - 1.0

Shadows - 0.2

Colour Saturation - 1.0

Whitepoint - 5400 Kelvin

Vignetting - 4.0

Physical scale

Check Unitless - 25000

Image of setting (Fig.05)

Because the sun and environment is out of scale according to the real world we need to scale down the properties so we get a more accurate calculation of sun light I found a 'Physical Scale' of 25000 worked well for this scene.

With all the settings done we need to change some things with the HDR map. With the Environment and Effects window still open click and drag the .hdr map into an empty slot in the material editor and click 'Instance'

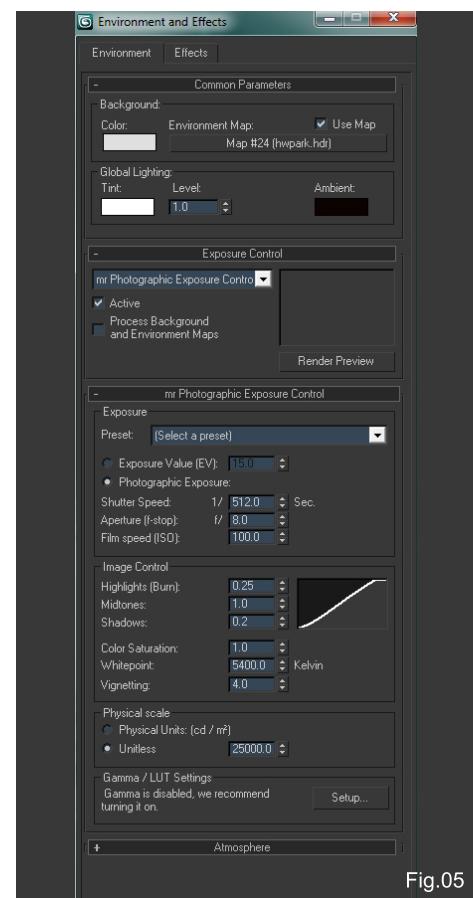


Fig.05

COORDINATES

Check Environ and change the Mapping to 'Spherical Environment'

This will wrap the .hdr image around the scene.

Image of settings (Fig.06)

So with all that done it's time for a medium render and a check for any issues before we start the final large render.



Fig.07

MEDIUM RENDER

I set the renderer to medium image precision and medium Final Gather settings. I still haven't enabled bounce light yet as it would increase the render times. I increased the size of the render to 800*600. With these settings I was able to see any problems that may occur.

From the medium render I was able to see a problem. The Colours are being washed out by the intense light being cast by the sun. The red archway doesn't stand out next to the beige and brown walls that surround it. This shouldn't be the case, being a red wall it needs to stand out. Also the blue shutters (upper left) are over exposed in places and washing away the blue colour. I think all of the textures could do with some touch ups in Photoshop, a simple levels adjust would do. The Levels adjustment brought out the detail and darkened the texture, now when the intense light hits the walls the textures won't be lost.

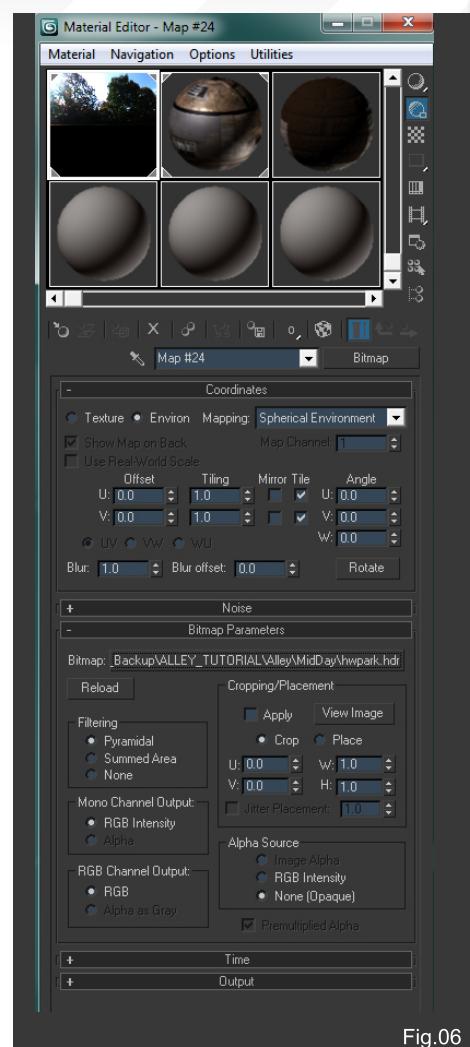


Fig.06

Here is a before and after of the textures (Fig.07)

I hit render once more with the medium settings to check that texture were now displaying correctly. I was quite happy with the medium sized render and I couldn't see any major issues. I was now ready to go ahead and set up a high quality render.

FINAL RENDER SETUP

Here are the settings used for the large final render (Fig.08)

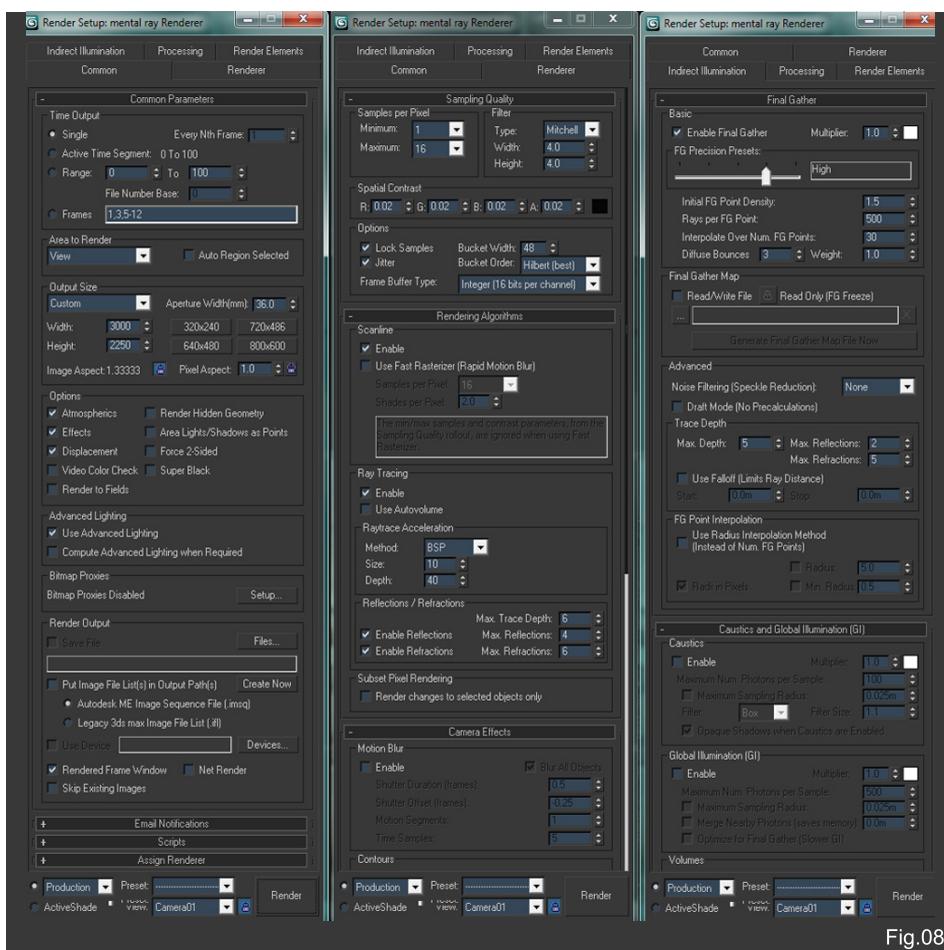


Fig.08

I shall use Alpha and ZDepth render elements and composite them in Photoshop to help me get the best image possible.

So with everything set up it's time to hit that render button for one last time!



Fig.09

Here is the final out come from the Mental Ray renderer. (Fig.09)

Now that we have everything we need we can import them into Photoshop and start the polishing stage.

PHOTOSHOP COMPOSITE

With this image there wasn't much Photoshop work that needed doing because the lighting was just right for the time of day, and with the color correction done in the textures earlier on, only a minimal amount of post work needed to be done.

I started with the sky, because the HDR map is visible in the render we need to get rid of this. I created a layer mask and pasted in the Alpha render element, this 'Cut Out' the HDR sky so

now it was transparent. I then created a new layer underneath the render and filled with a nice sky blue colour.

I then applied the following adjustment layers:

Levels – To enhance the darks and whites.

Color Balance - Give the image a slight bluish tint to replicate the blue sky GI.

Curves – Enhance the whites more to get an over exposed look on the sun bleached wall.

Lens Flare – 105mm Prime, very low opacity and placed on the corner of the metal roof to the right of the green door above the archway. To give the illusion of the sun reflecting off the metal surface, and to further convince the viewer that it is a baking hot day.

Here it is, the finished Image. (Fig.10)

CONCLUSION

I am happy with the final outcome for this render. I feel I have achieved a hot sunny day with plenty of 'hot spots' and was able to keep the colour in the textures from being washed out under the intense light from the sun. The blue sky adds a nice touch to the composition. I tried a new approach to lighting in this tutorial than the others, I normally stick to mr-Area omni lights and mr-Area spotlights for my lighting rigs, but I wanted to show the daylight system and I thought a sunny day would be the best time to show off what it is capable of. I hope you have learned something new from this tutorial and I really enjoyed making this one.

ANDREW FINCH

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Fig.10

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ENVIRONMENT

LIGHTING: OUTDOOR

CHAPTER 4: MIDDAY SUN



CHAPTER 4 - MIDDAY SUN

Software Used: 3ds Max + V-Ray

This month's assignment is midday sunlight – the kind you could see every day, if you are lucky. But since it's so common sight, we'll have to be careful not to make it too plain. Of course, if you are working for a client/director, they may have another vision, but I'd like the image to look good, maybe stylized a bit instead of plain, but realistic. The stylization I have in mind lies in color correction – I like the colors of old film photos, like those on the (Fig.01), so I'll try to incorporate some of that look in our image. It comes from many sources – from using Lomo camera, which was my childhood

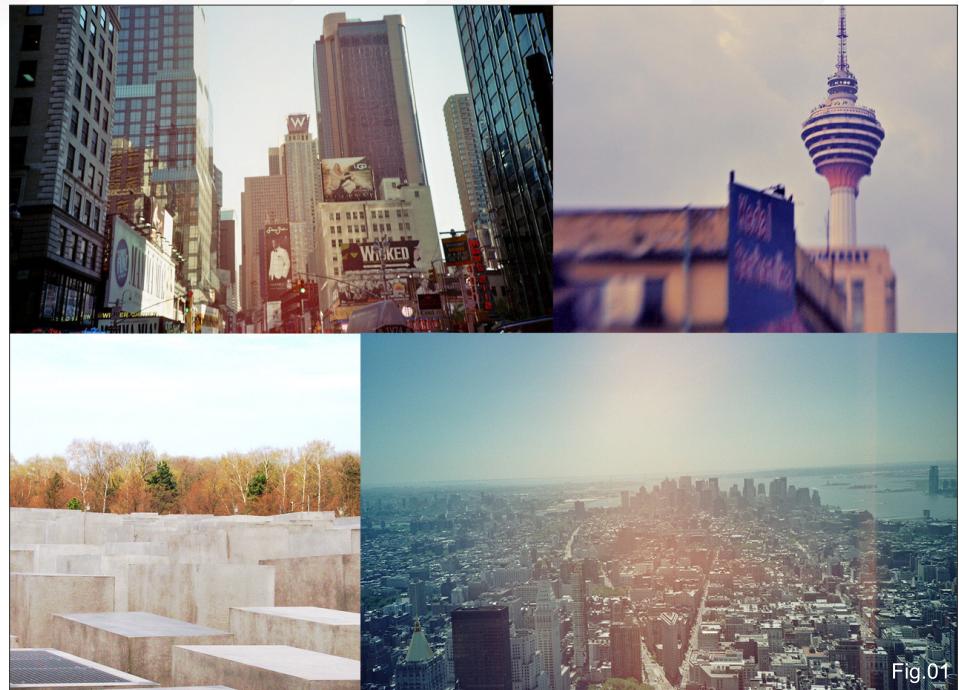


Fig.01

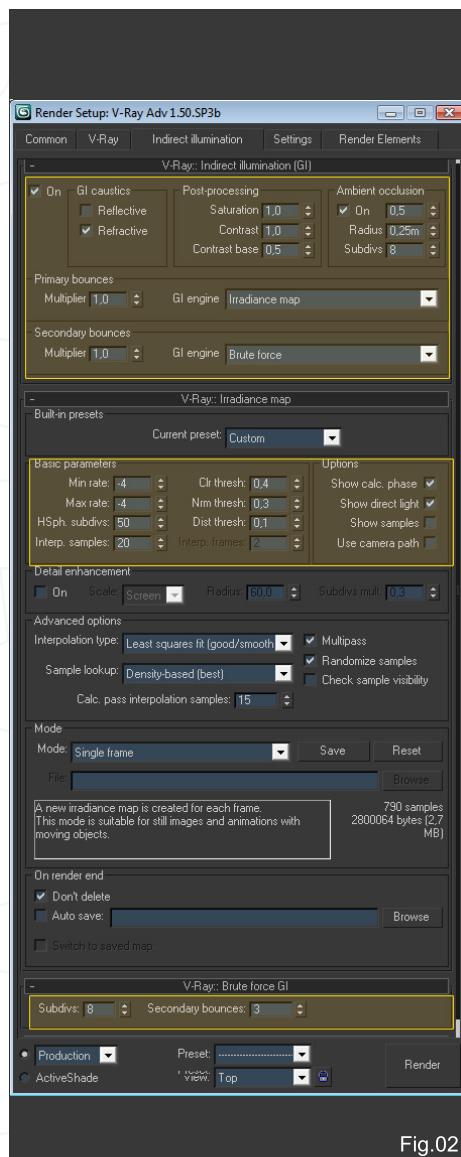


Fig.02

toy, way before becoming hip ;), from processing your film in wrong chemicals (so-called cross-processing), or from the film itself, often producing some color casts/distortions. This has little to do with the 3d part, and a lot to do with post-production, so more on that later.

Lighting-wise, midday sunlight is pretty simple, strong sun as a key light, blues sky, leading to blue-tinted, hard-edged shadows. That's it... well, not yet. Composition, as usual, is most important. The mentioned hard shadows can be pretty intense, creating shapes of their own.

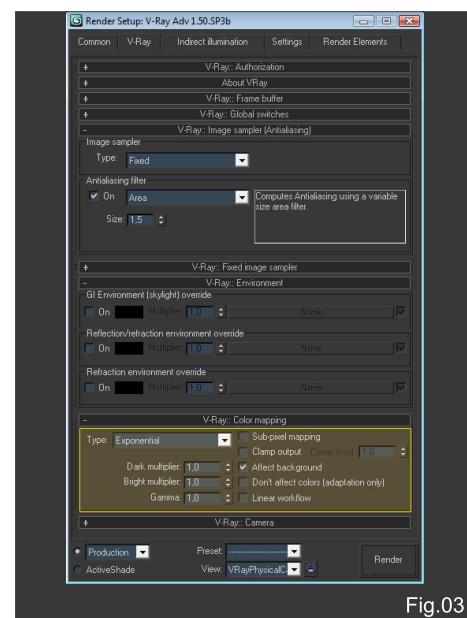


Fig.03

Those shapes can either hurt the composition, becoming a distraction, or help it, guiding the eye to the focal parts of the image. Fortunately, it's easy to try various sun positions quickly. Besides... those shadows quite often shouldn't even be blue – neutral colors may work as well, depending on the situation.

This case is a great occasion to use Vray sun & sky system – that's what it's made for. It should give us a good looking, but 'neutral' generic image. I'm using it in tandem with GI. I mainly use Irradiance Map for the first bounce and Brute Force for the secondary bounces – that is the default setting which works for me in most cases (Fig.02 – preview settings). Detailed settings like number of bounces, or Irradiance Map size of course vary over time – low quality for previews, higher if the scene requires it. For still images, as in this case, I try to use fastest (lowest) setting possible, while still getting acceptable result. For animation, the Medium Animation setting is usually safe with the flicker free option. I also use a hint of global Ambient Occlusion to add some detail to the shadowed parts of the image.

One of the first things I usually do is setting the Color Mapping to Exponential (Fig.03).

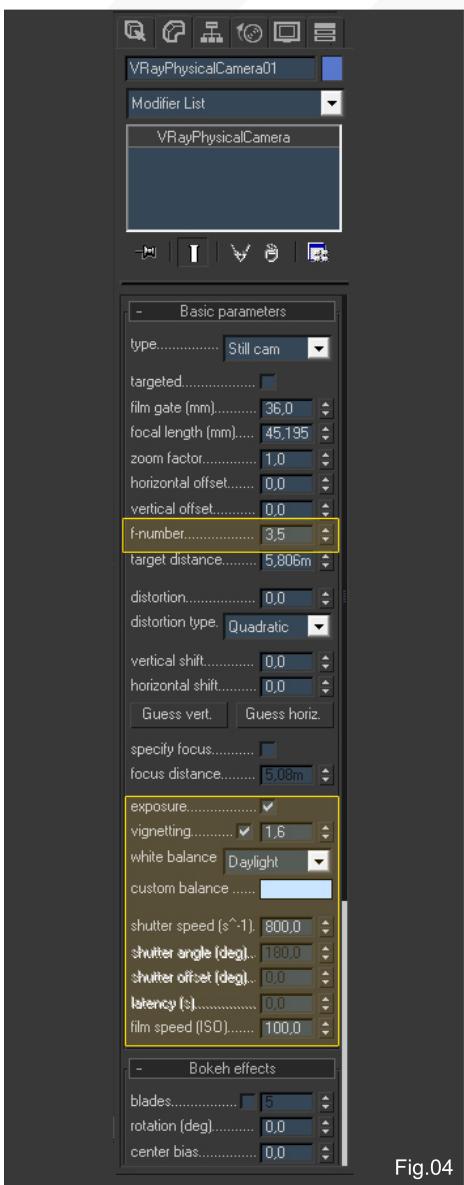


Fig.04

While this isn't probably the most physically correct way, it has some advantages. The way it works is it prevents over bright 'hotspots', and oversaturated color transitions. It's also very tolerant – it's really hard to whiteout the image, and the lights have a very wide range of usable multiplier/strength setting (but that range often ends up being pretty high, like 512 or so, especially with the fog on). It has downsides also, making the colors look desaturated, and decreasing the contrast of the image. I actually like it that way, because I can easily bring back the contrast and saturation in post production, and for some scenes it just fits – but if you don't like it, there's HSV exponential mode, which keeps the colors better. Generally though the main use I have for default, Linear Multiply, is rendering some additional passes, like masks.

The scene needed some preparations – adding Vray Displacement to the street surface, some reflections to the windows (using blend material, Vray Mtl for the windows, and a black & white mask). Metal parts, like railings and lamp also got a shiny reflective Vray Mtl.

Before rendering anything I created VRayPhysicalCamera, so I could control the brightness of the scene in a more intuitive way (as I have a bit of photographic experience).

The settings pictured on (Fig.04) took some trial and error to get them right – generally, if the scene is more-or-less built in real world scale, the settings that would work if we were to take a photo of that scene in real life, are a good starting point. The Vignetting option is quite useful here, darkening the corners of the image, and focusing the viewer's attention at the central part of the image.

Now it's time to create the sun. Let's choose Vray Sun. The pop-up will appear, asking about adding Vray Sky in the Environment slot – I hit OK, since I'll need it. Next I switched Vray Sky to manual sun node, and pointed the newly created Vray Sun as the sun node, and tweaked the parameters a bit (Fig.05). Decreased Turbidity means more blue sky, and adjusting the intensity allows me to tune the balance between sun and sky light.

To position the sun, it's good to display shadows in the viewport (Fig.06). That way I can see the shadows in real-time, and finding a nice composition is really fast. I chose to place the sun almost directly above the scene, so the road surface is brightly lit (Fig.07).

If we look at the rendered image, we see that front facing walls are too bright, making the

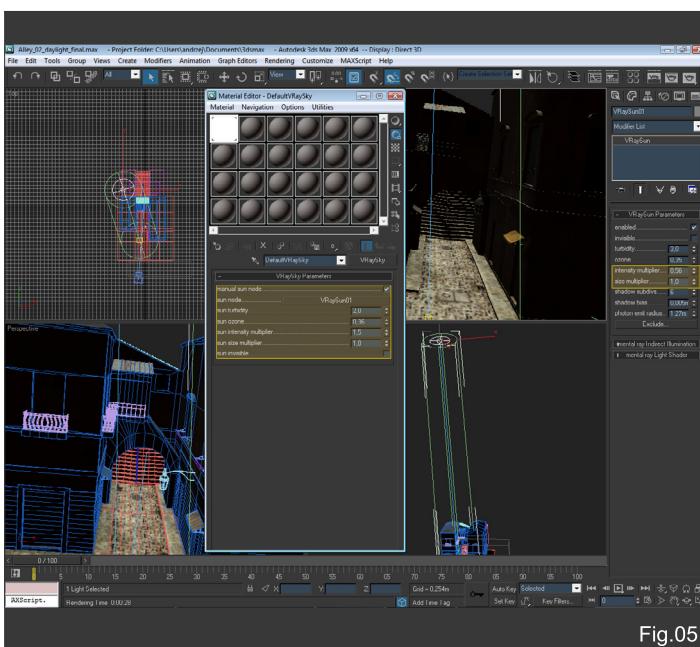


Fig.05

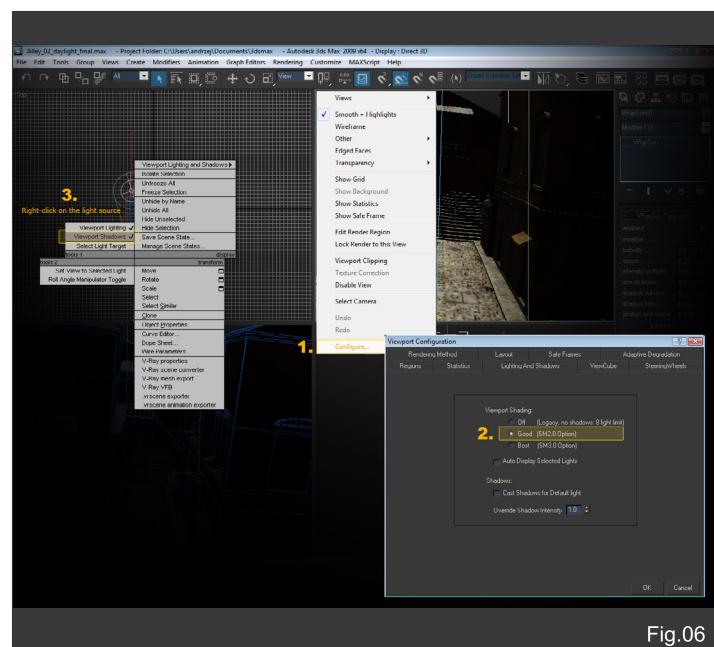


Fig.06

image look flat. The easiest way to darken them is by placing an object invisible to the camera, to occlude some of the skylight (simulating the buildings at the other side of the street) (Fig.08).

Now comes the time for final rendering and post-production. I already did some tests on a low-res preview – which is something I really recommend doing. It's easy to spot problems, and fix them, before rendering the high-res, and wasting many hours if it's wrong in some way. What I want to do is to add a bit more contrast,

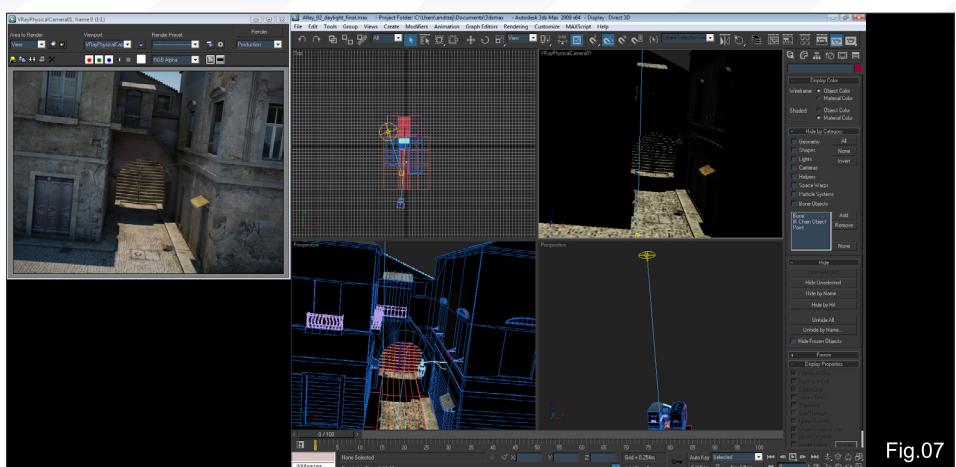


Fig.07

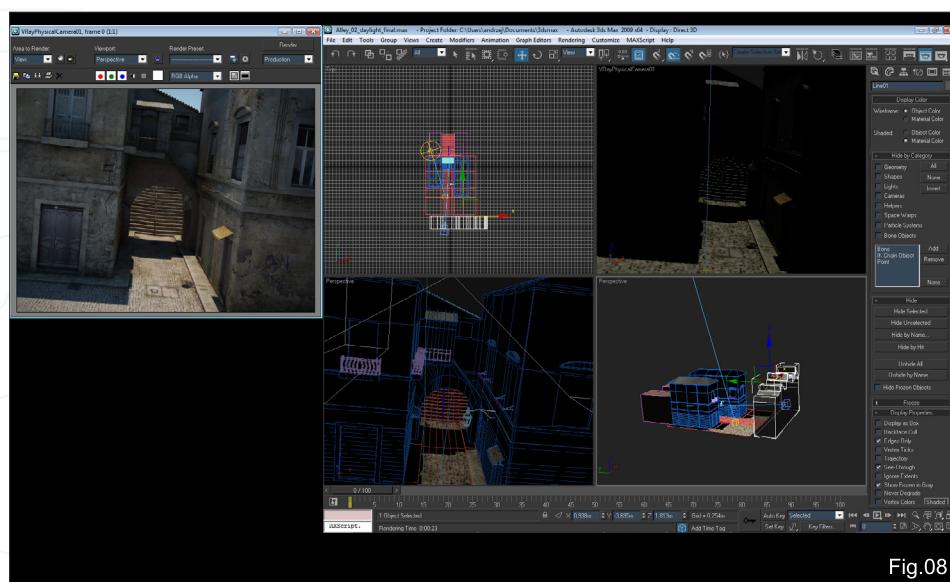


Fig.08

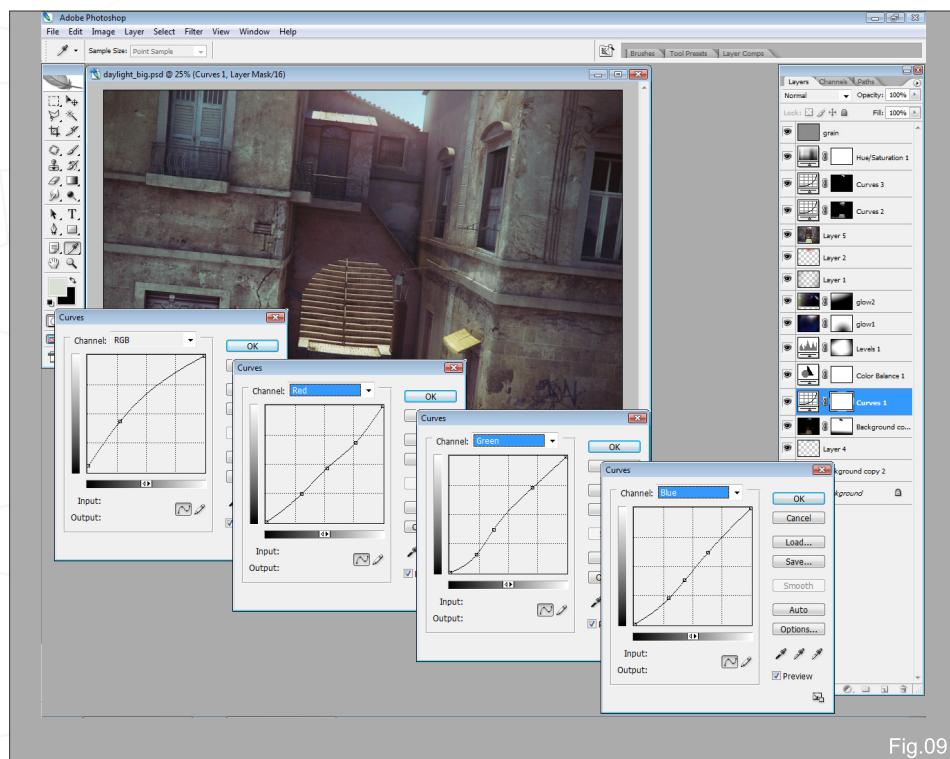


Fig.09

and shift the highlights towards green, and shadows towards magenta. I did it by using Curves in Photoshop, and shaped the curves for each of the R, G, and B channels separately, as well as the default RGB one. (Fig.09) shows the curve shapes. I did some other mostly localized adjustments, some highlight, some glow and grain, etc – pretty standard fare. As an afterthought, I decreased the saturation of the yellow highlights a bit, to get slightly more neutral image. (Fig.10) shows the final image.

For situations like this, the built-in Sun & Sky system works great, and saves a lot of time. Of course, there may be a need to supplement it with additional lights – but here, it's just enough. There's a caveat, though – images done that way tend to look quite bland and similar to each other, so it's good to customize the settings a bit, and do some post-production magic to add a personal touch – treating the rendered image as a raw material rather than final image..

ANDRZEJ SYKUT

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Fig.10

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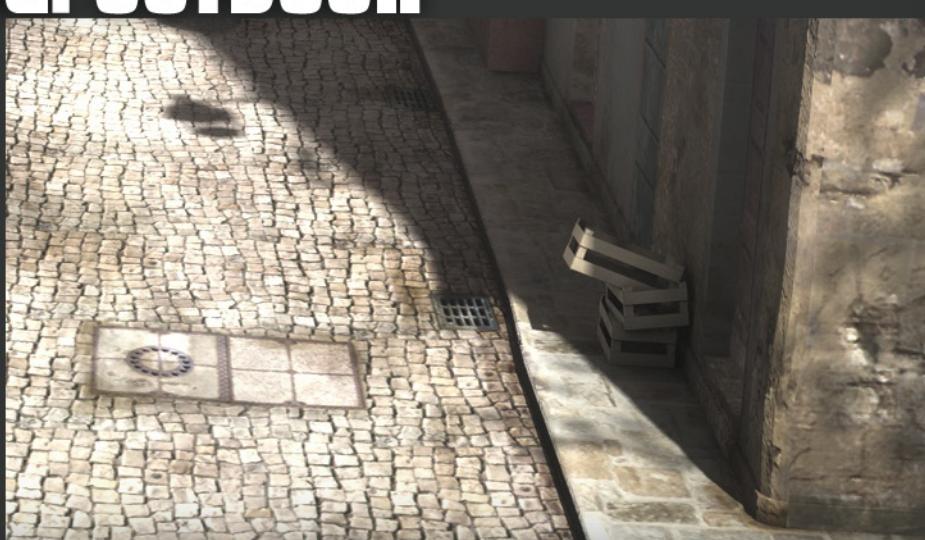
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ENVIRONMENT

LIGHTING: OUTDOOR

CHAPTER 4: MIDDAY SUN



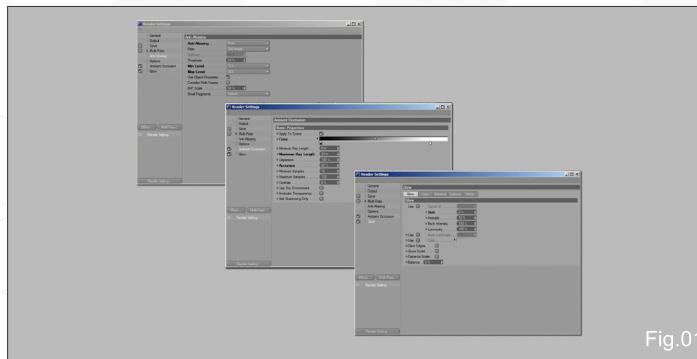


Fig.01

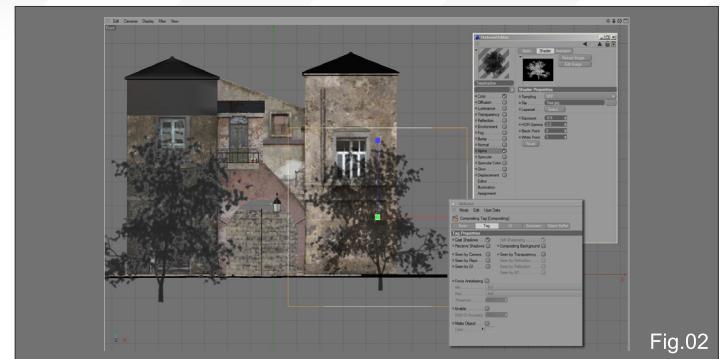


Fig.02

CHAPTER 4 - MIDDAY SUN

Software Used: Cinema 4D 11.5

ABOUT THIS TUTORIAL:

This is the fourth part of a series of lighting tutorials for Cinema 4D.

The files of this tutorial were created by using the release 11.5 but I had no problem to open them in release 10. R 9.6 but earlier does not work, sorry ;) As not everybody owns the Advanced Render or a third party render, I try to concentrate just on the functions of the core-render in Cinema 4D as much as possible. So it should be possible for everybody to follow this tutorial. As you may have seen over this series of tutorials, using classical ways of illumination does not mean you get bad results. Another point is that features such as Global Illumination (or Radiosity in earlier versions of Cinema 4D) have strong differences in their workflow, parameters, and functionality in combination with the release used for your work. The attributes manager contains a lot of folders for the different settings. In the screenshots I only show up areas where changes have been made, the rest is still in default. So let's start...

CHAPTER 4: MIDDAY SUN

In general we have two different components for our lighting setup here: The direct key light coming from the sun, and the bouncing light sources which simulate the light being reflected by walls, the street or other things in the scene. Whilst the key light works in a very strong and direct way, the bouncers act more subtly...

THE RENDER SETTINGS , MATERIALS AND EXTRAS

When we look at the render setting menu we can see that I used ambient occlusion which is part of the Advanced Render. Well, if you do not have the AR it is not an essential feature to follow this tutorial. It just looks nicer ;) The other point is sub polygon displacement. To get a work around, just subdivide the meshes and use the normal displacement in the material manager. To get a certain main illumination effect, I added a luminance of 4 to 5 % of every material in this set file. This allows us to get an extra gi-fake effect.

The render resolution very much depends on the performance of your system, but using a width of 320 pixels might be too small. The glow I activated here could be done in post work also. If you have problems with your render speed while using anti-aliasing, you can set it to "None" of course. Looking at the render settings, you might discover, that I added some glow to the scene to get that certain moonlight mood...

(Fig.01)

To make the final image a bit more interesting, I added two shadow droppers which give us the illusion of two trees standing outside the camera view. They are simple plane objects with an alpha texture of a tree on. (Fig.02)

THE SUNLIGHT

Well, this is the key light for our scene. The light has a more warm tone in that case. Considering the fact that our scene is located in summertime at midday or early afternoon, we

have to place the position of the sunlight high above the set in order to get that typical "high noon" sphere. I've chosen area shadows in that case and an infinite light source. The contrast level is set to 40 %. This should deliver that certain illumination mood. Because of the fact, that I had to find out what the most decorative direction for the sunlight might be, I added a target-tag. Doing so, it is easy to rotate around the set without losing the focus point.

(Fig.03 – 04)

Let's take the time to watch the sunlight pass at the editor shot. As you might recognise, the areas directly illuminated by the sun appear quite correctly, but shadowed zones look very dark and cg-like. This is, because we do not use global illumination here. We should get rid of that ;)

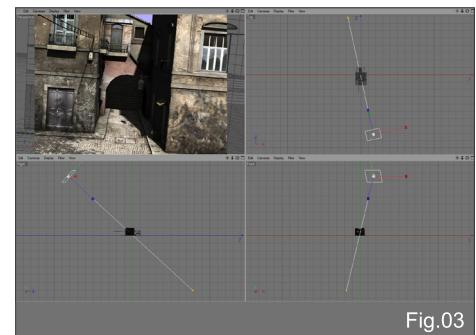


Fig.03

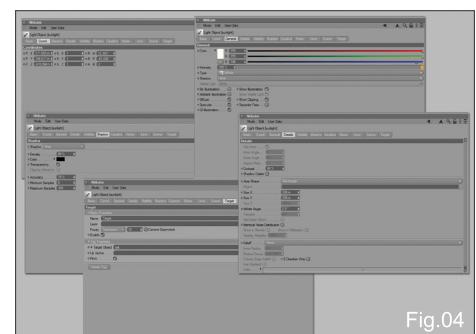


Fig.04

THE BOUNCING LIGHTS

Now we try to simulate the light reflected and diffused by buildings, and even the sky itself. As you watch at the figures you might discover that I used a combination of an adapted area light and some spotlights concentrated on the surfaces of the buildings and details in the

scene. Remember: we want get the shadowed zones less dark and with more definition on small details. Using in-and exclusions is a suitable method to control the amount of light every part is getting here, without getting disturbed by elements which should not be illuminated by the bouncers. (Fig.05 – 18)

As we take a look at the parameters of Fig.06, we see that it is an area light, with a kind of beige color tone. This light source works very softly and the color of the light simulates the reflected sunbeams being dropped from the wall. The shadows were set to “soft” and in this case to 80 % strength. In most cases I never

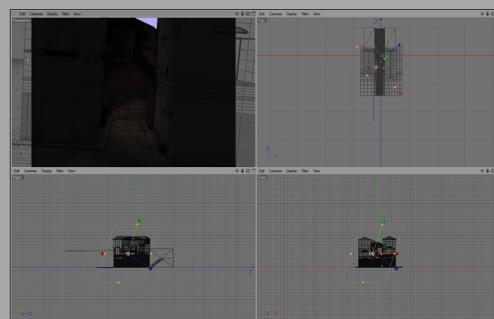


Fig.05

Fig.06

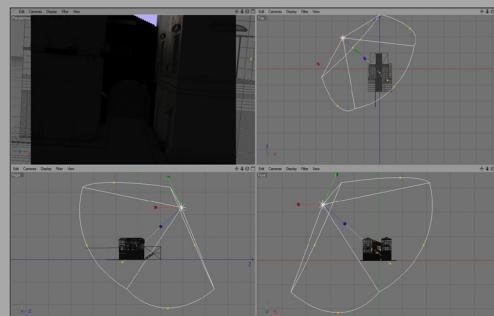


Fig.07

Fig.08

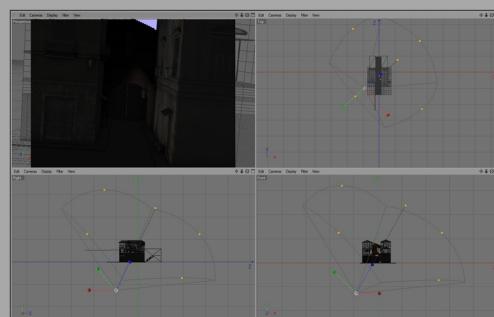


Fig.09

Fig.10

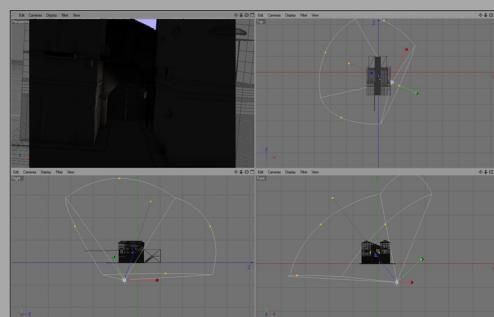
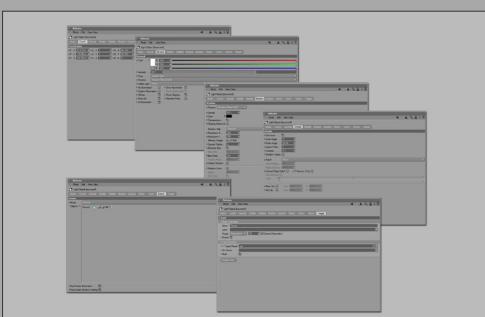
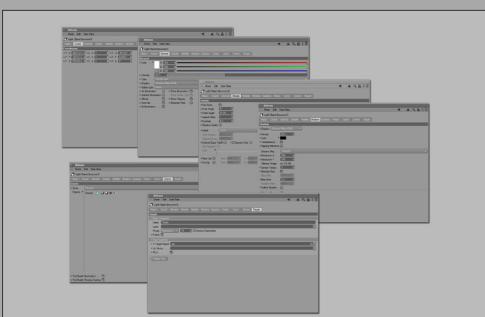
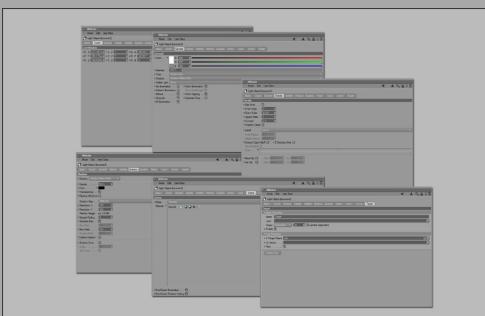
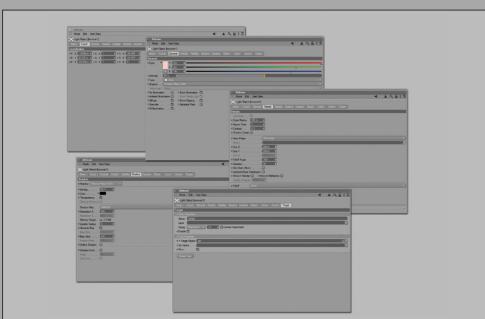
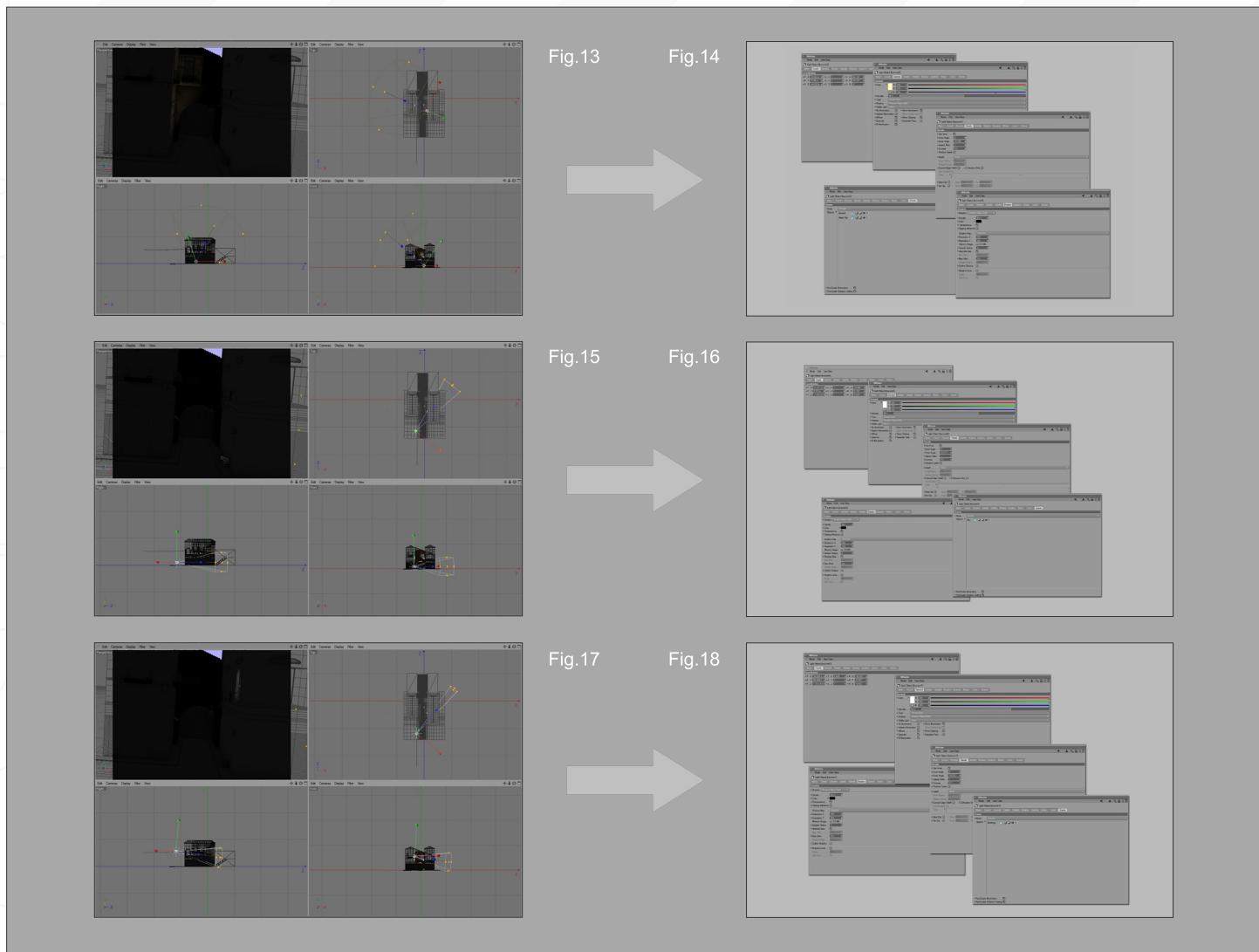


Fig.11

Fig.12

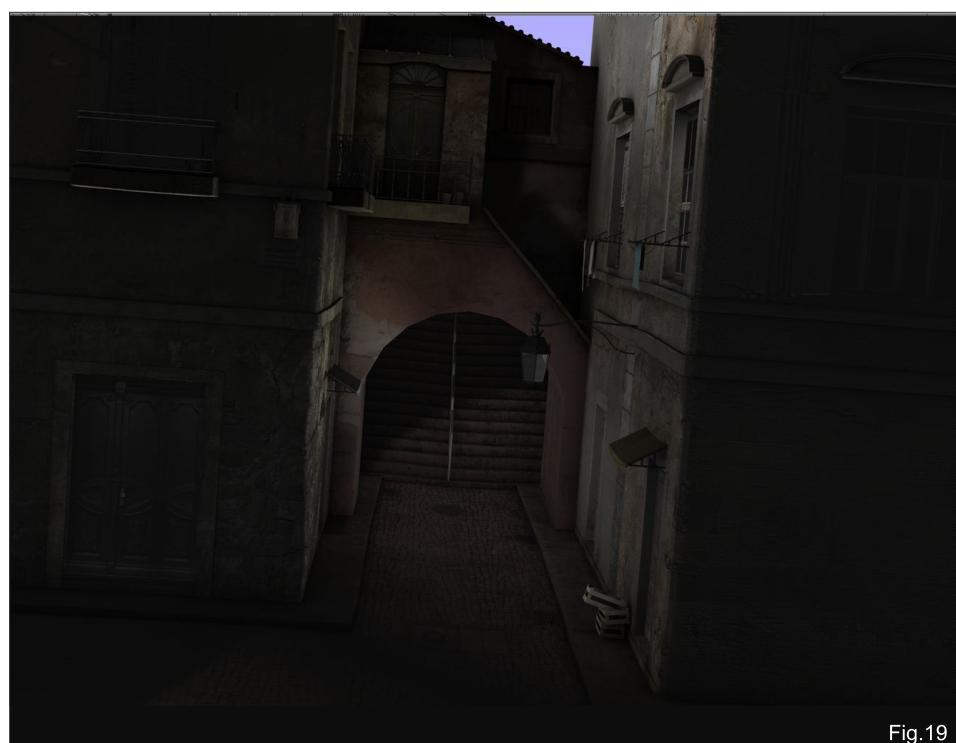




use 100%-shadows because normally you won't find them in nature in such a situation. Every bouncer has shadow strength below 100 %. The assumption of all bouncing light sources with that parameter creates an extra amount of diffuse illumination.

The other bouncers are square spots focussed onto different areas of the set. By using the exclusion feature we can even let the bouncers through the ground shine. This gives us the possibility to simulate reflected light coming from the ground.

The rendered pass of all bouncers shows how big the total amount of light in the shadows now is. We get more definition on several small details of the meshes and the final render will appear more realistic in general. (Fig.19)


Fig.19

ENVIRONMENT

Using the environment object we get a simulation of humidity, you always find outside.

This feature is very handy to create effects like fog as well. Just play around with the parameters ;) I used it in every lighting setup until now. (Fig.20)

The final result should now look like this (Fig.21)

A SMALL BONUS

Although I said that I use classical illumination without any gi in this tutorial, I made a very simple extra setup of this scene including global illumination. I used QMC mode (Quasi Monte Carlo) with default settings. The position of the sunlight was slightly changed but the main change in this case is that I reduced the strength from 180 % to 140%. To get more gi-effect I added an hdri-map on the sky object

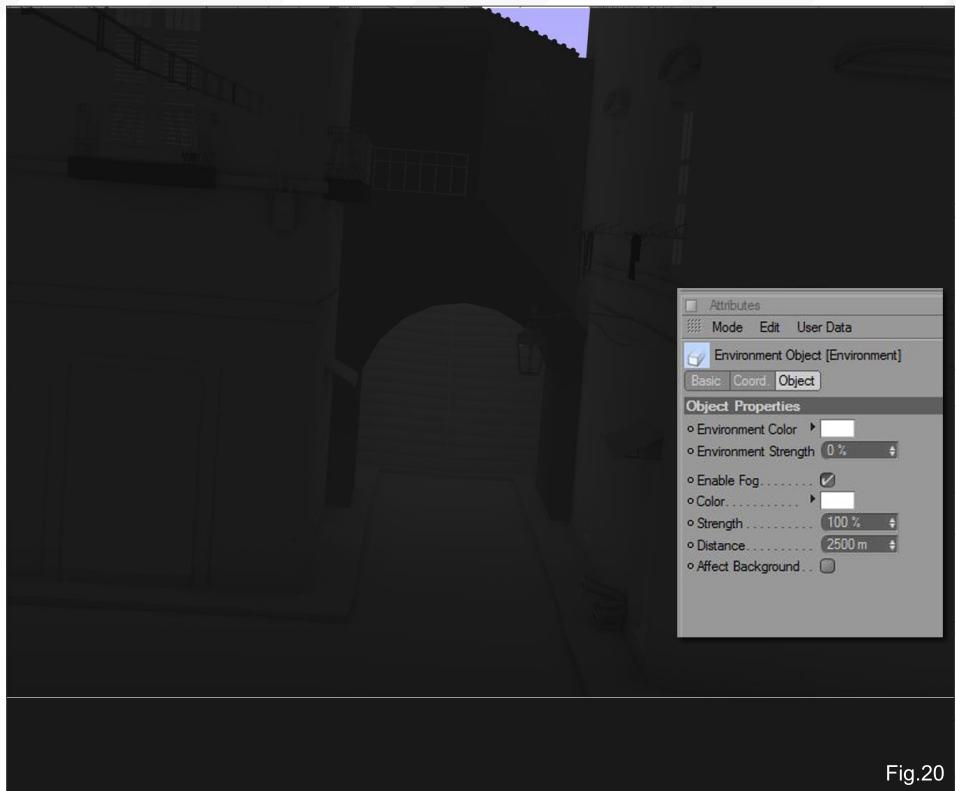


Fig.20



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Fig.21

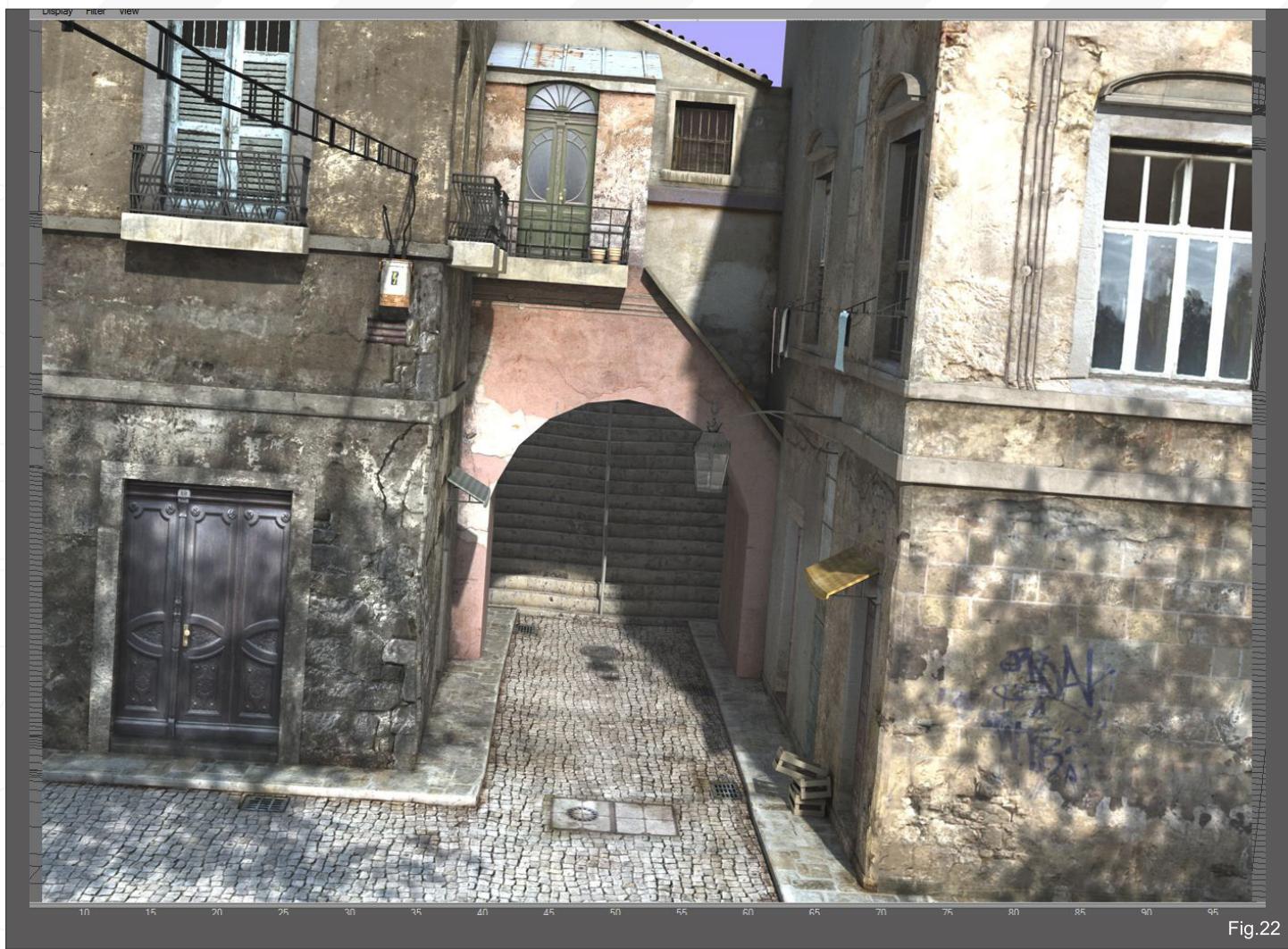


Fig.22

coming with the C4D-materials of your application. It is called HDRI 009. The only bouncers left in this scene are number 3, 4 and 5. Well, even with gi, bouncers it can be useful ;). But in fact using gi is only an option if you are using a 64 bit system, because for this little rendering the ram consumption went up to 2,6Gb. And you need the Advanced Render 3 of course. Besides the fact that the glow was deactivated every other parameters were untouched. Another strong point is the performance of your rendering machine. This editor shot rendered in around 9 minutes on my 16 core workstation...that might take a bit longer on a laptop ;) (Fig.22 - 23)

That's enough for the moment, I hope you enjoyed this tutorial. See you again in the next part, Fredi Voss

Tutorial by:

FREDI VOSS

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Or contact them:

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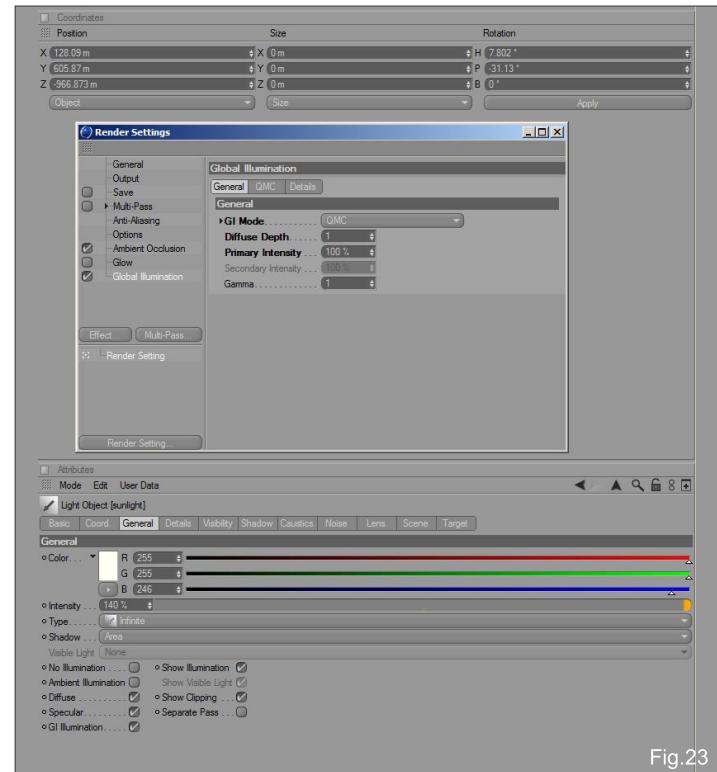


Fig.23

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ENVIRONMENT LIGHTING: OUTDOOR

CHAPTER 4: MIDDAY SUN





CHAPTER 4 - MIDDAY SUN

Software Used: Maya + Mental Ray

Welcome to this new lighting tutorial. This time we'll create a warm midday lighting situation, and as usual we'll use Maya and mental ray as renderer.

The starting scene is the same as the last tutorials (Fig.01). We only have some geometry (buildings, street, etc.) and textures. There's also a camera ready to use.

Before going on, make sure you're using mental ray for the renderings.

Open the Render Settings windows and in the Common tab check for the Render Using option; set it to mental ray (Fig.02).

Last times we used Physical Sun and Sky to create a sunset and a moon light lighting, changing and customizing a lot of parameters to get the right



Fig.01

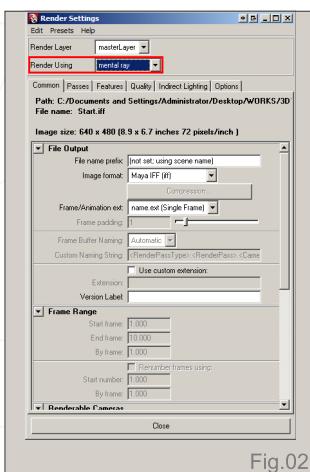


Fig.02

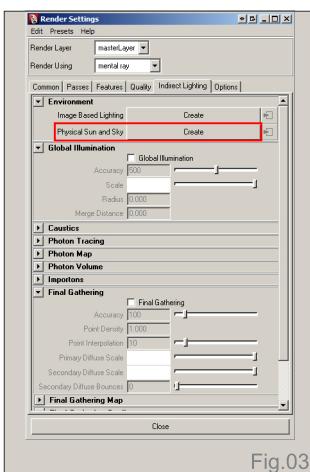


Fig.03

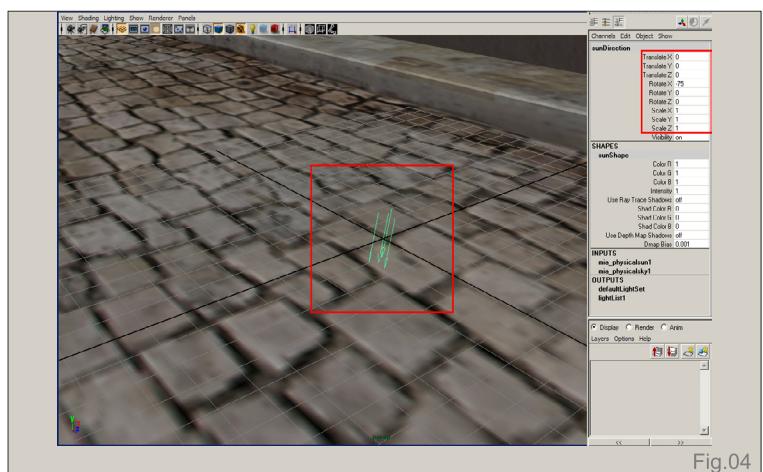


Fig.04

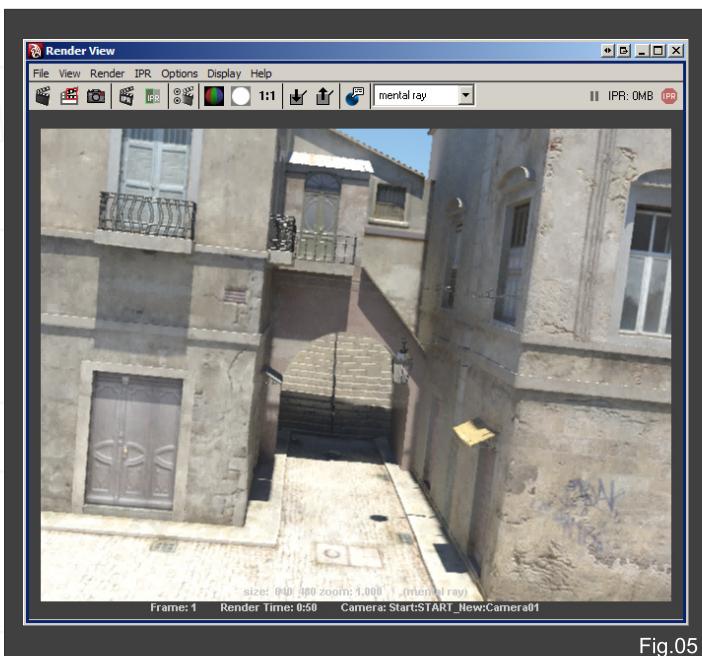


Fig.05

look. This time it will be easier, as you will see Physical Sun and Sky will do pretty much everything we need to create nice midday lighting. Switch to the Indirect Illumination tab in the Render Settings window and click on the Create button next to Physical Sun and Sky (Fig.03).

A new direct light will be created at the origin (Fig.04). Feel free to move and scale it to better see it and for selection purposes, just make sure that its rotation stays at $X = -75$. As we said previously, the only thing that really matters is the rotation value for this kind of light, so we need it to be almost perpendicular to the ground level, just like the midday sun.

Now it's time for a first render test. Open the Render View, make sure that you're using the right camera for the rendering and do a quick render (Fig.05). The lighting is almost right: straight, dark and cold shadows and over-exposed areas, the typical lighting situation for midday. The exposure of the image is totally off, though. That's because Physical Sun and Sky automatically creates a mia_exposure_simple node attached to

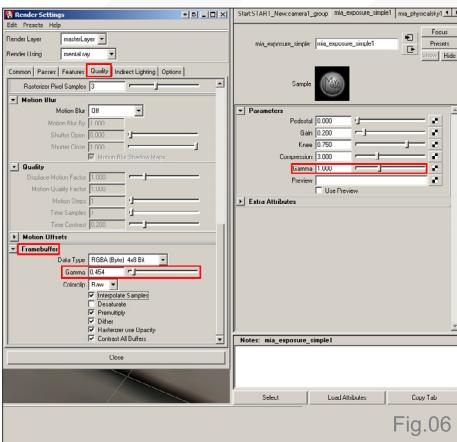


Fig.06

the camera, and this node gamma-corrects the image assuming that all the textures have the right gamma values. In some cases that may be true, but to be sure the colors won't be washed out by the exposure control we need to change some parameters.

Let's assume we're working with a gamma of 2.2. Open the Render Settings window and switch to the Quality tab. In the Framebuffer section, make sure you enter the value showed in **Fig.06**. That value is given by 1 / desired-gamma-value (which in our case is 2.2). We also need to change the gamma value in the *mia_exposure_simple* node, which will be set to

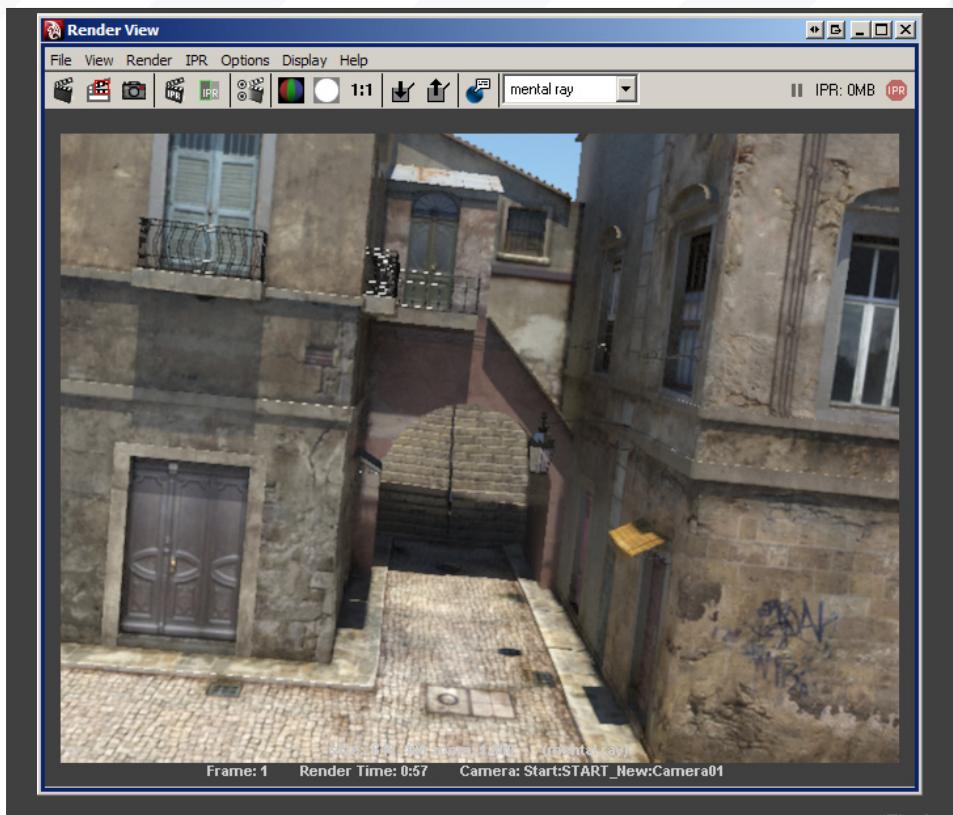


Fig.07

1. In this way the exposure control will not wash out colors from our textures.

If you render the scene again, you will see the difference (**Fig.07**).

The picture still looks desaturated, so we need to increase the Saturation value in the *mia_physcalsky* node (**Fig.08**). Also, you can set the Ground Color to a warm color.

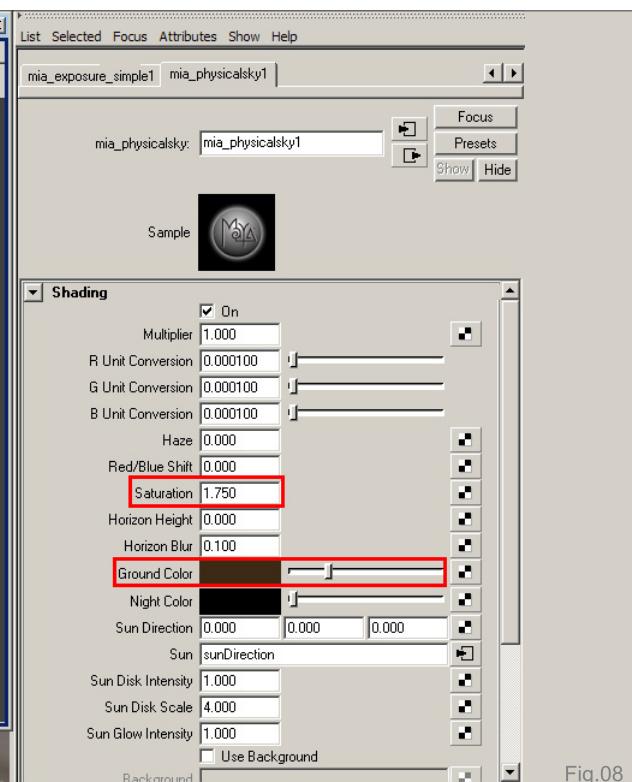
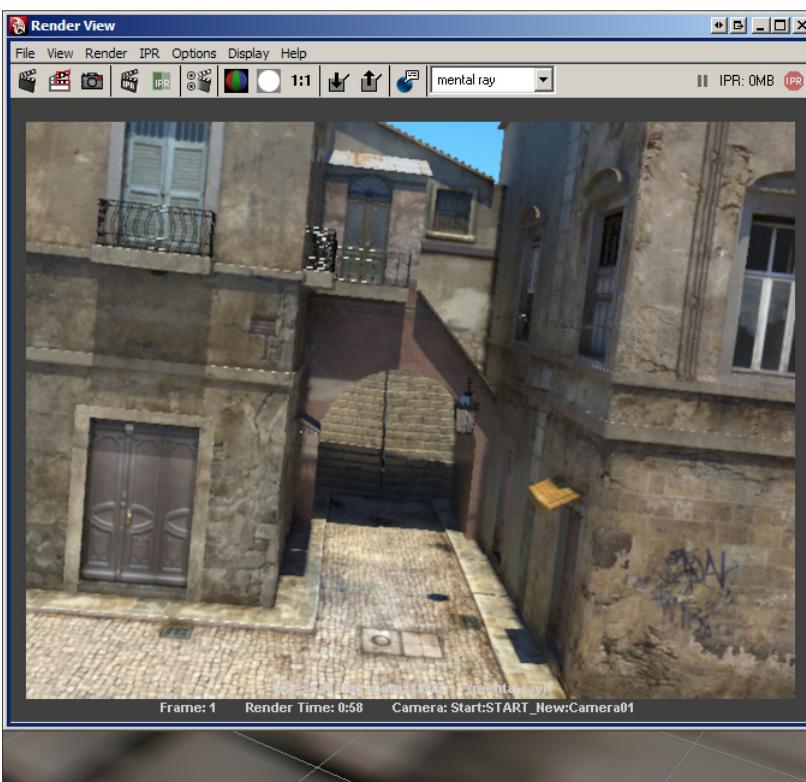
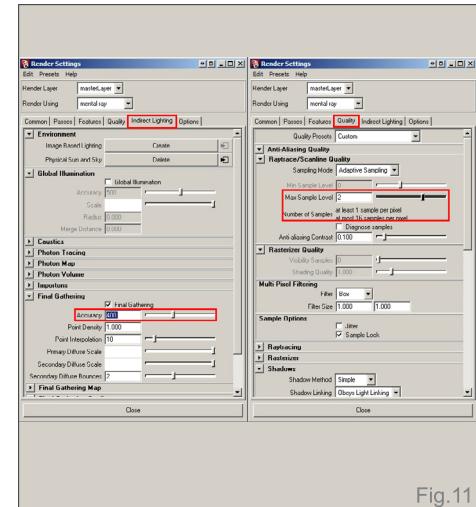
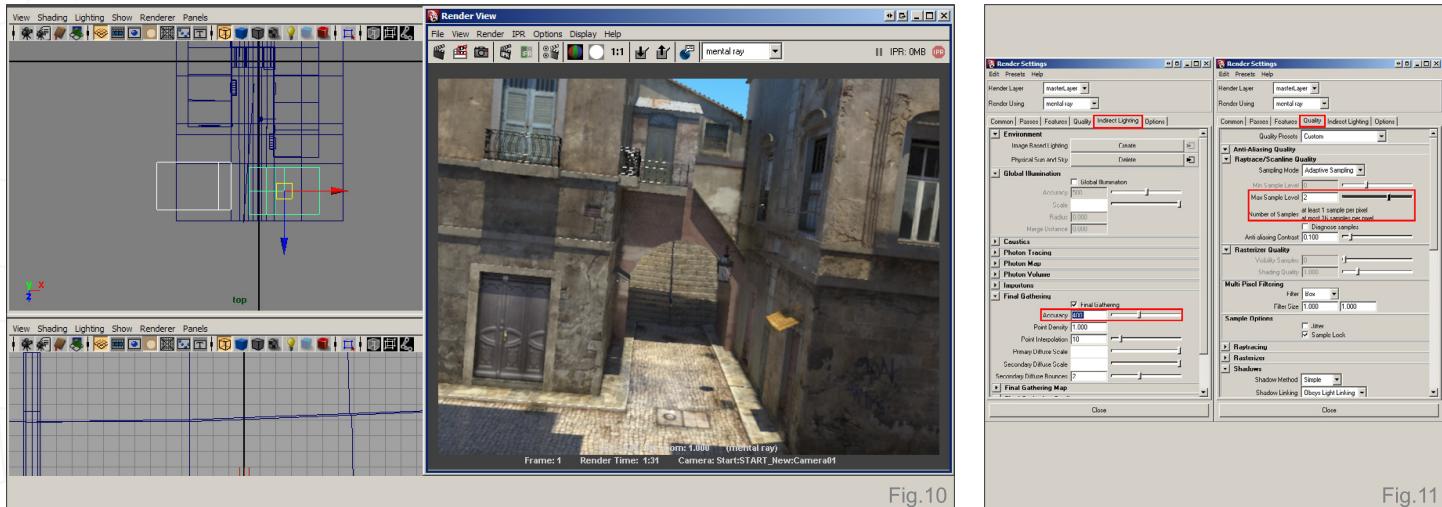
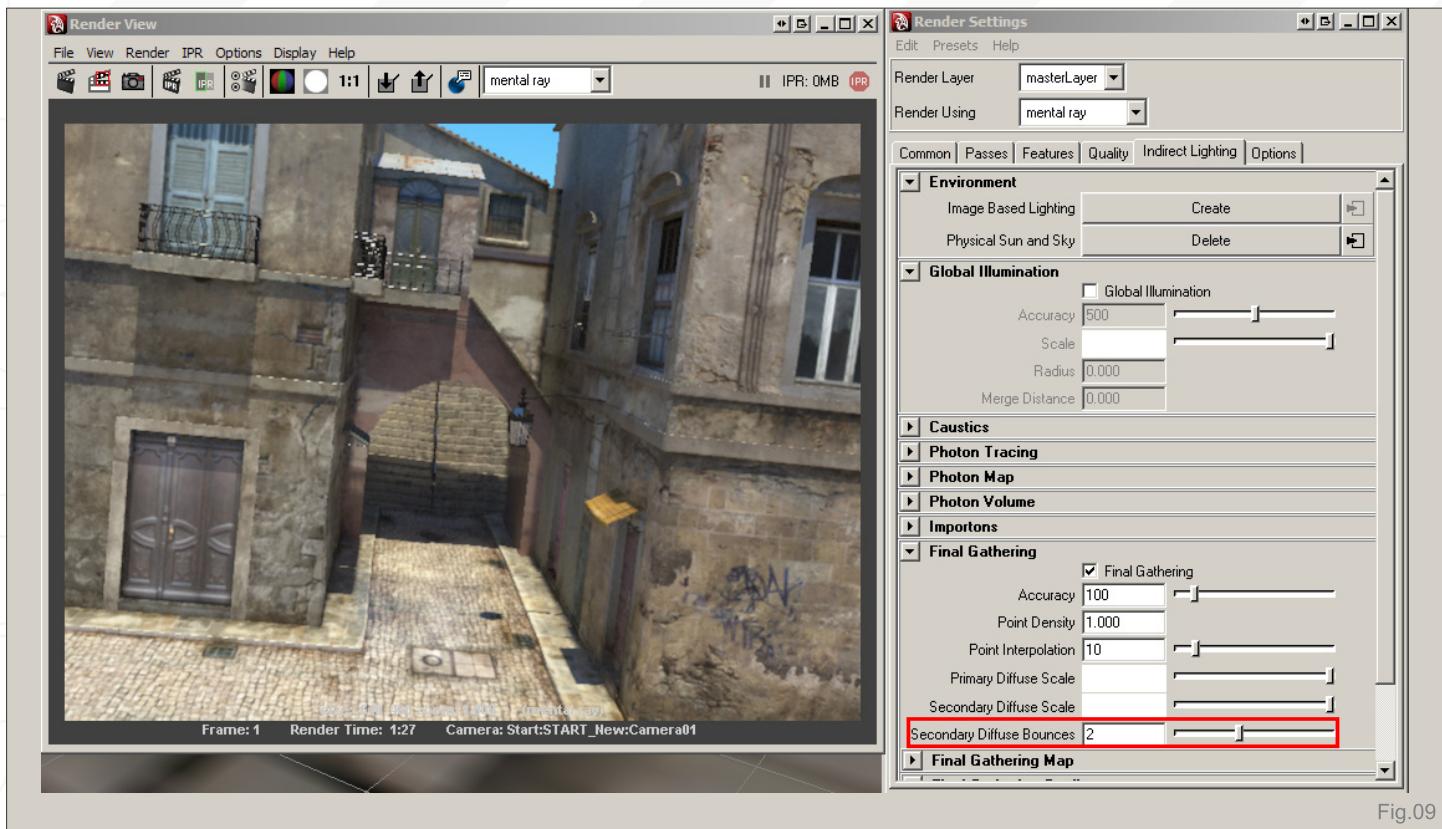


Fig.08



Open the Indirect Lighting tab in Render Settings and increase the Secondary Diffuse Bounces to 2 (Fig.09).

To have a more interesting picture, you can move the two white buildings closer to the textured ones; in this way, the sun will cast some more shadows in the scene, filling the empty spaces on the street. (Fig.10)

Now we can set the final rendering. Increase the Accuracy value for the Final Gathering to 400, and set the Adaptive Sampling anti-aliasing Max Sample Level to 2 (which means 16 samples per pixel). (Fig.11)

In Fig12 you can see the final color pass. (Fig.12)



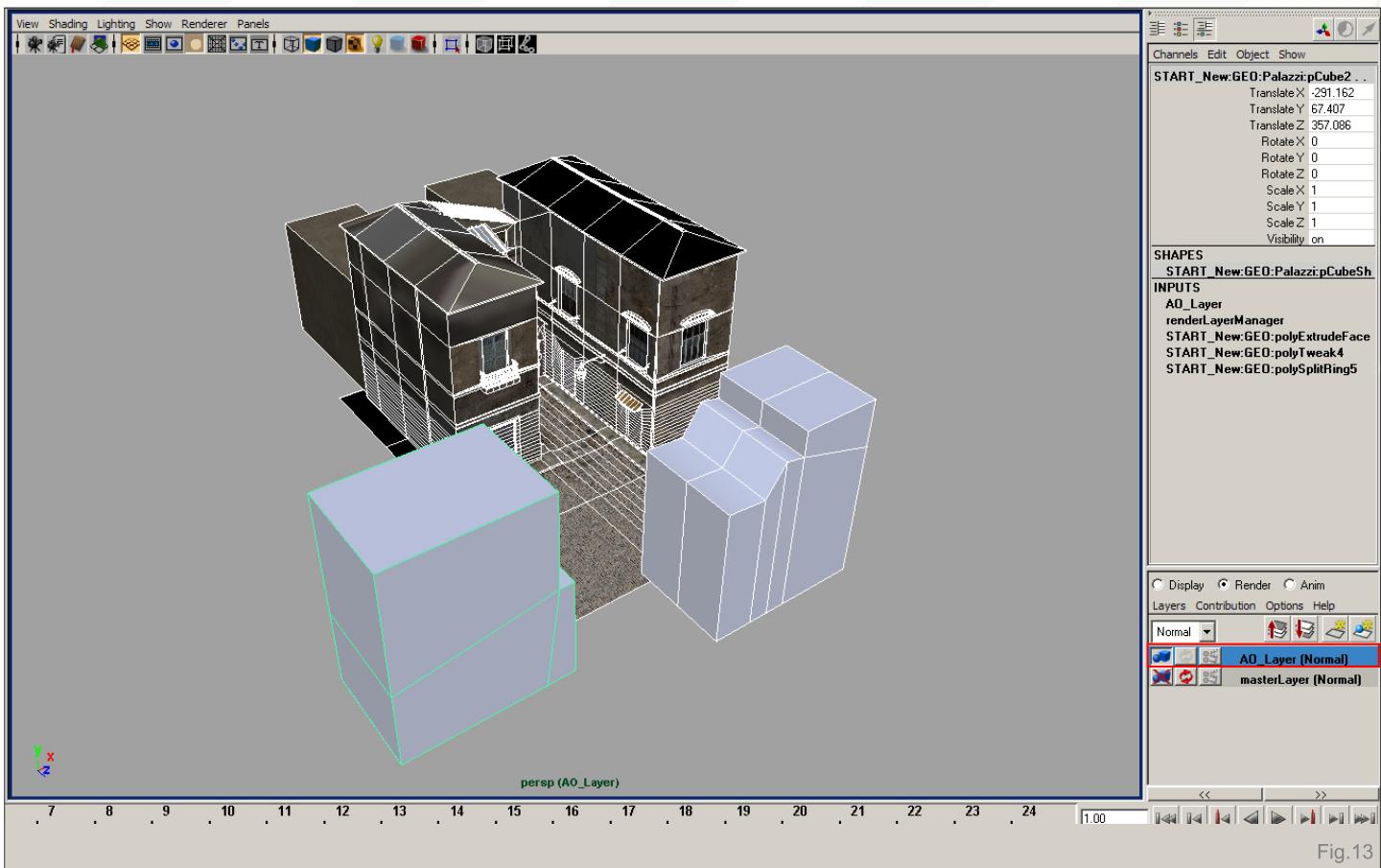


Fig.13

We also need an Ambient Occlusion pass to composite it over the color pass in Photoshop. Select all the geometry in the scene and assign it to a new Render Layer (**Fig.13**).

Create a new Surface Shader in the Hypershade and connect a mib_amb_occlusion node to it. Lastly, assign this new shader to the Render Layer you created earlier (**Fig.14**).

Render the scene again (with the AO Render Layer selected) to get the AO pass (**Fig.15**).

Open both the color and AO passes in Photoshop. Copy the AO pass over the color one and change its blending mode to Multiply and its Opacity value to about 85. Also, try to play a little with the Levels for the AO pass, to get the desired amount of ambient occlusion (**Fig.16**).

Collapse the two layers together. Duplicate the resulting layer and change its Hue & Saturation to get a nice warm tone. Blur it with a Gaussian Blur filter and change the blending mode for this layer to Screen. Also change its opacity value to about 81. (**Fig.17**)

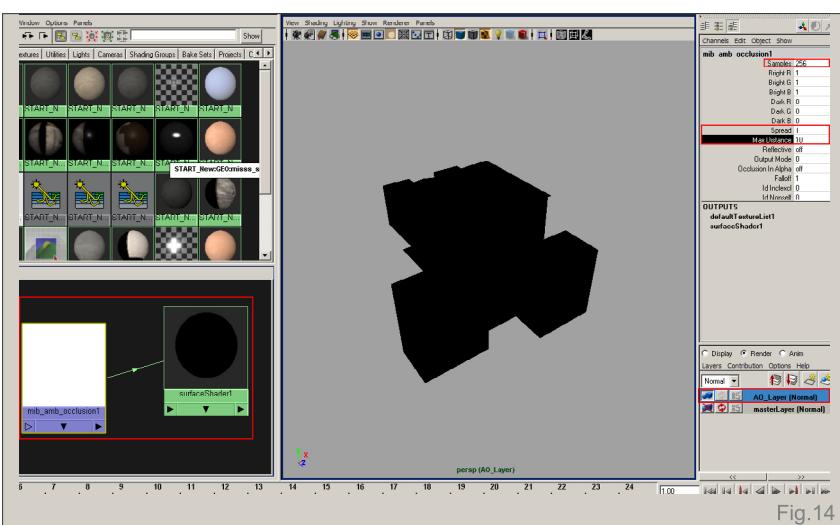


Fig.14



Fig.15

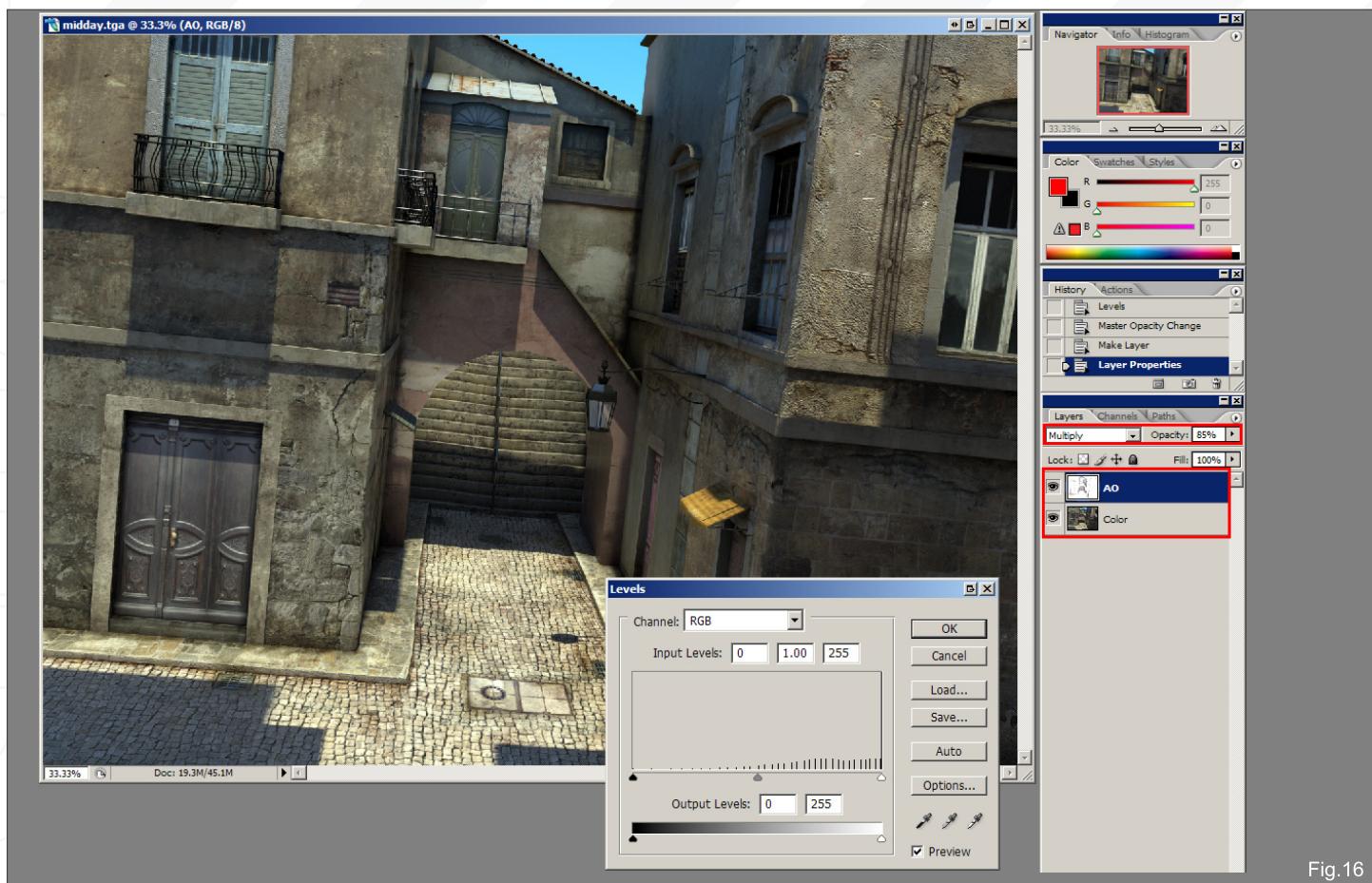


Fig.16

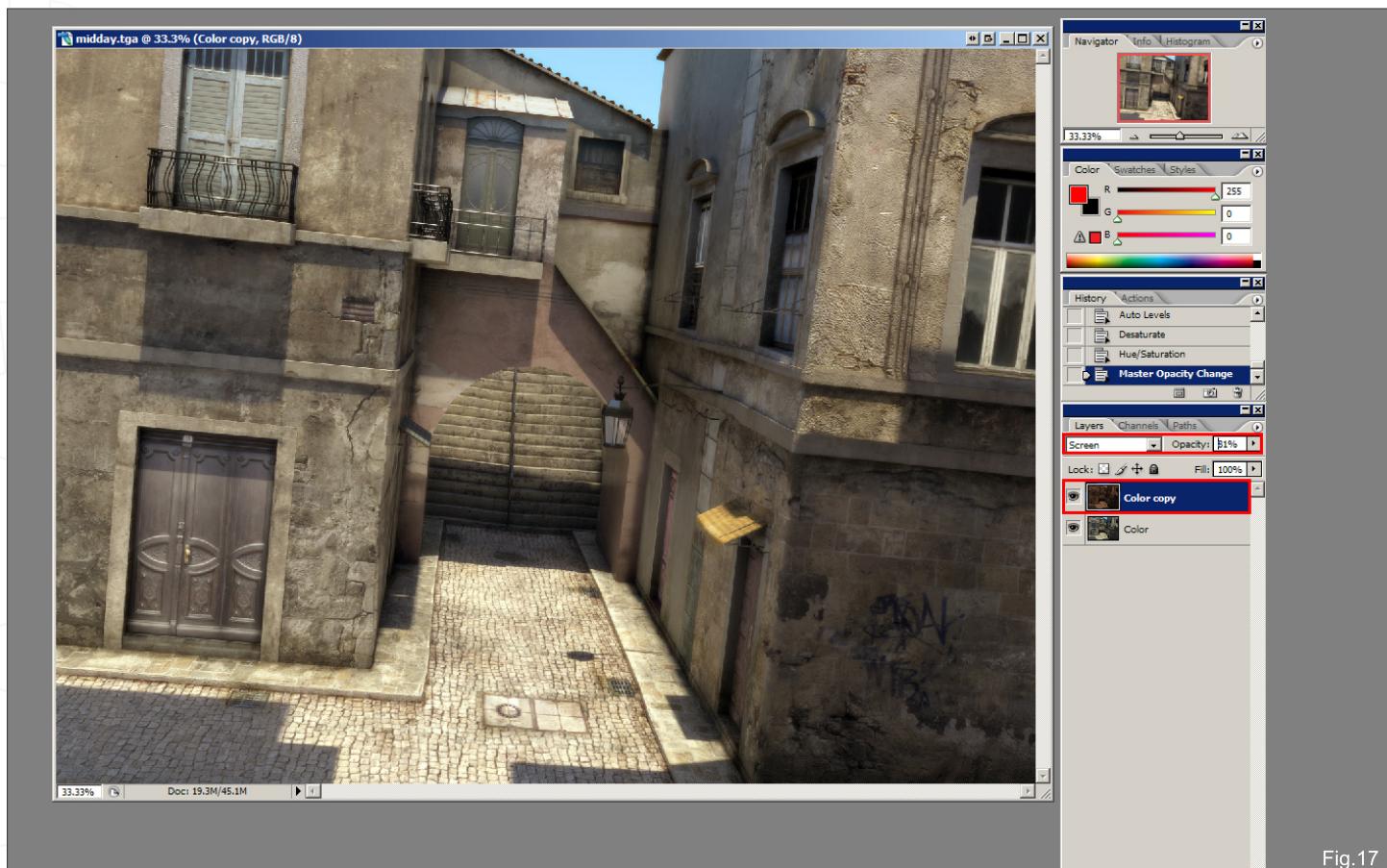


Fig.17





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